MAY 1958

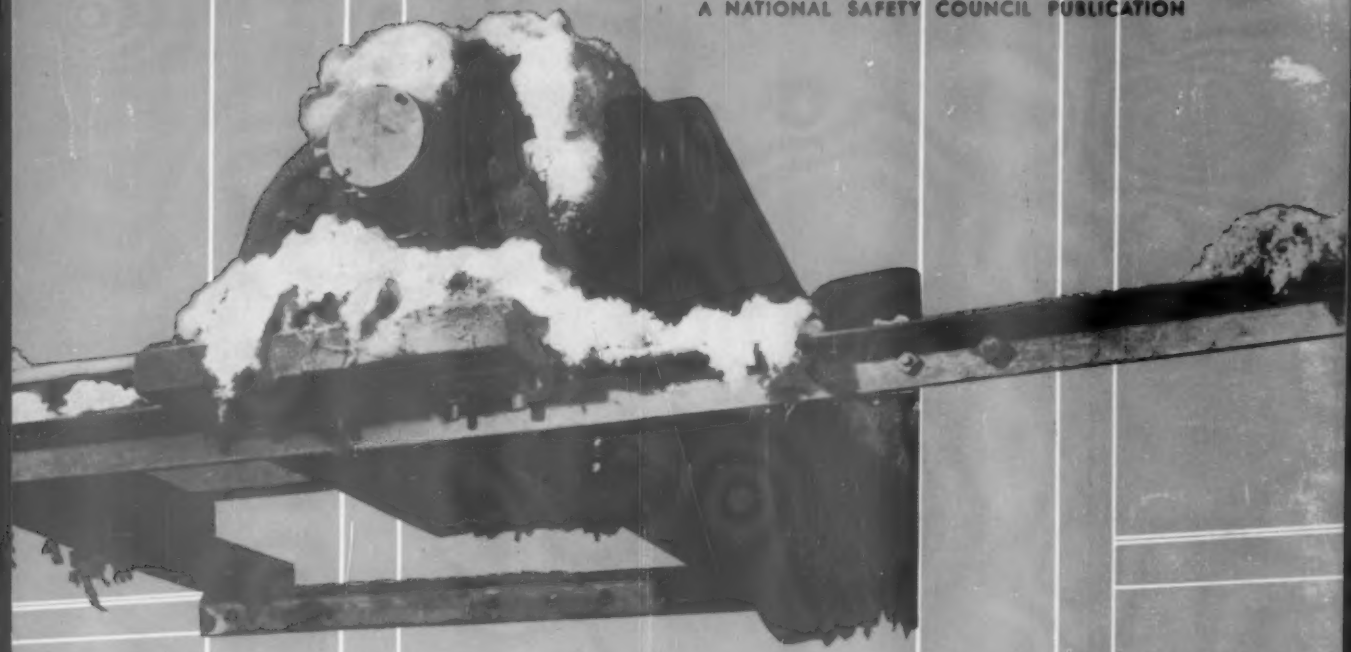
With Technical Feature Section

THE JOURNAL

of the American Society
of Safety Engineers

National SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION



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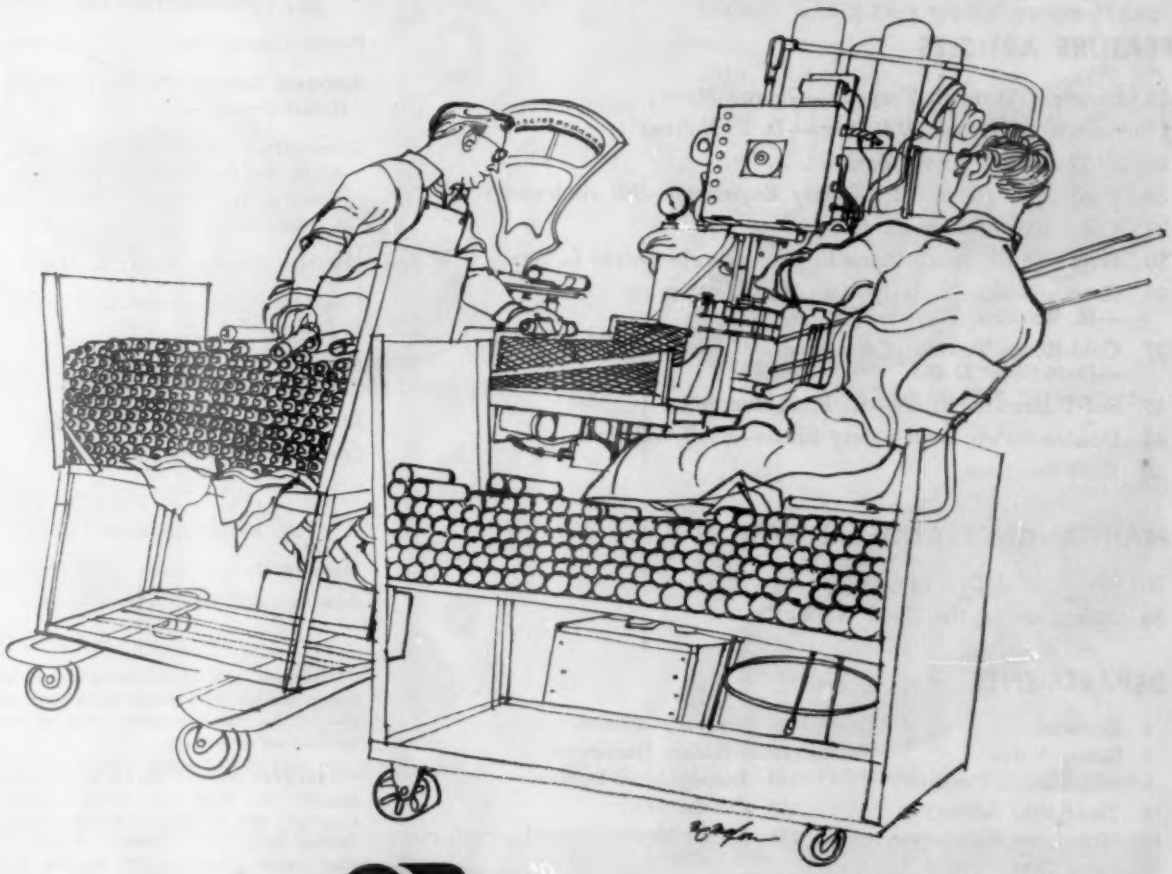

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National SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION

Vol. 77, No. 5 MAY 1958

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FEATURE ARTICLES

MAINTENANCE AND SANITATION

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SPECIAL TECHNICAL SECTION

National Safety Council

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EDITORIAL

Blueprint of the Future

EXPERIENCE has taught us many things but it has not provided shock absorbers to ease our jet-propelled flight into the Age of Space, Secretary of Labor James P. Mitchell told the Tenth Anniversary President's Conference on Occupational Safety.

With the theme, "Safety Conserves Manpower—Manpower Builds the Future," the Conference brought together 3,000 industrial, labor, and safety leaders in Washington, March 25-27. In formal addresses and in workshop discussions which comprised the three-day program, there were penetrating analyses of problems and well-planned presentations of preventive techniques.

To safety men, Secretary Mitchell pointed out, the Age of Space has a truly revolutionary meaning. "Safety First" is no longer just a glib slogan; it has become a grim necessity.

Under the stands in the University of Chicago's Stagg Field in December 1942, a group of scientists demonstrated that atomic fission must be achieved safely or not at all. This demonstration ushered in "pre-planned research."

Our former methods of finding and removing hazards have become obsolete. Pre-planned safety research—creating experimentally the conditions to be expected in actual practice—must be the basis of future safety programs. In exploring the terrific forces of nature we cannot afford to have the first accident.

But, Secretary Mitchell warns, we must not become so fascinated with the hazards of the future that we ignore those of the past, many of which still plague us. The Space Age will pile new hazards on familiar ones.

Radiation is a controllable hazard. So far its applications have been accomplished with a high degree of safety. But widening uses of nuclear energy will challenge our ability to understand and practice the techniques of control. The same may be said of the new chemicals.

Looking on a brighter side of the picture, automation promises a few gains, safety-wise. Machines will do more and more of the heavy, dangerous work. But how about the effect of monotony on the men at the dials? And will maintenance crews be exposed to greater hazards in servicing these complex installations?

And perhaps the greatest enigma is man himself. How can he adjust himself to the faster tempos? How can engineering compensate for human limitations? Modern technology imposes risks that cannot be offset completely by improving behavior. Acceleration brings both physical and psychological problems.

Complicated machines, higher speeds, and new technologies demand more technical and precise training for safety engineers, as well as for physicians, biologists, industrial hygienists, psychologists, and operating men. The increasing skills needed at all levels will mean a greater investment in the individual and a correspondingly higher return on effective conservation measures.

The breath-taking pace of this age has brought home to the public the need for safeguarding progress. The President's Conference has brought together safety's leaders and provided a blueprint for action.

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THE SAFETY VALVE

Nothing human is alien to me

—TERENCE

Scientists Are People

THE POPULAR IDEA of scientists as squares and anti-social hermits is all wrong, a Du Pont executive told the Tenth Annual Management Conference at Cornell University. After putting 2,400 Du Pont research men under the microscope, Samuel Lenher, a vice-president of the company, came up with some interesting facts about the "typical" American scientist.

Summing it up, the scientist is a family man who takes a deep interest in religious, social, and civic affairs. He's good company at a bridge game or on the golf course.

Approximately 75 per cent of the 2,400 listed church as important in their activities.

The scientist is a family man; 88 per cent of them are married. Average number of children is slightly more than 2, as compared with 1.5 for the average American family.

He is interested in civic affairs; 37 per cent participate in 64 different community activities.

He likes sports; 72 per cent engage actively in 42 different sports. Golf is most popular, with bowling second. Tennis comes third. Fishing, softball, swimming, hunting, basketball, sailing, chess and other recreations have their devotees.

Hobbies include gardening, bridge, dancing, organized reading, cooking, bird-watching, archaeology, painting, telescope building, rocket design, music, sports cars, electronics, and chess.

His job isn't hazardous, thanks to modern safety practices. For all Du Pont laboratories, the injury frequency rate is 23 per cent lower than the over-all company rate (which is just about the lowest in the country).

Another misconception is that the researcher is an underpaid drudge in a scientific sweatshop, while the company cashes in on his brains. Of course, Mr. Lenher admits, the company gets the benefit of work done on company time. But, if the discovery proves profitable, the inventor gets a fair cut.

There's another popular notion—that business suppresses inventions or keeps them in deep-freeze because development might hurt an existing business. To refute this, Mr. Lenher cites the example of nylon, which was placed on the market even though it cut heavily into the company's rayon sales. And Orlon and Dacron are now competing with nylon.

And what's more, the scientist is no mere cog in a machine. Mr. Lenher points out with pride that 43 of Du Pont's 118 top management men began as research scientists.

So, it would seem, there is no good reason for any bright youngster with an inquiring mind and ability in math, physics, and chemistry to shy away from a career in science. There are opportunities for girls, too.

Sounds Familiar, Doesn't It?

OUR YOUTH now love luxury. They have bad manners, contempt for authority, disrespect for older people. Children nowadays are tyrants. They no longer rise when their elders enter the room. They contradict their parents, chatter before company, gobble their food, and tyrannize their teachers. —SOCRATES.

Cardinal Sin

WHEN YOU'RE dealing with human beings, impersonality ranks high among the cardinal sins. It's at the bottom of many of industry's problems, according to psychiatrists and personnel counsellors.

Even the least imaginative person likes to feel that he means more to the company than a lathe or work bench. But in too many plants the new worker goes through the employment routine the way material in process goes down the assembly line. A cold, impersonal attitude has probably caused more discontent and low morale than hard-boiled methods.

It isn't easy to deal with humanity in bulk and still maintain a friendly interest in the individual. Anybody who can do it is a real asset to the company. The foreman who is a friend as well as boss cultivates loyalty. So does the examining doctor who is more interested in helping a man get the right job than in screening out cases of hernia and poor eyesight.

In dealing with human problems the medical department holds a strategic position. The unofficial functions of the nurse or doctor can be no less important than bandaging wounds or handing out aspirin. Many workers have come to regard the medical department as a friend at court.

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Carman Fish

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CONSULTATION CORNER

By L. C. Smith, *Industrial Department, NSC*

Got a problem in accident prevention or occupational hygiene? Questions are answered by mail, a few of general interest being selected for publication here

Color For Portable Flammable Liquid Containers

Question. We have a problem relative to color designations for portable flammable liquid containers. I have recently been assigned the job of fire chief in our plant and I want to make certain the colors we are using are in conformance with recognized national color codes.

Answer. Flammable liquids are divided into three classes by the National Fire Protection Association according to their flash points, as follows:

Class I Liquid with flash point at or below 20 F, closed cup test.

Class II Liquids with flash point above 20 F and at or below 70 F, closed cup test.

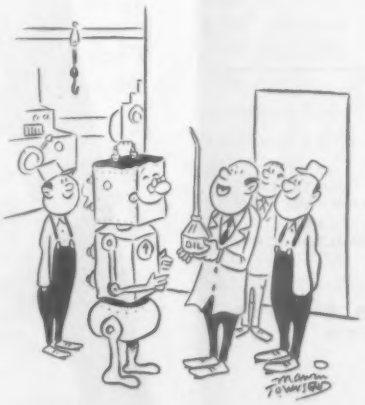
Class III Liquids with flash point above 70 F and below 200 F, closed cup test.

The American Standards Association has a standard *Safety Color Code for Marking Physical Hazards and the Indentification of Certain Equipment* in which the following statement appears: "Safety cans or other portable containers of flammable liquids having a flash point at or below 80 F (open cup tester), excluding shipping containers, shall be painted red with some additional visible identification either in the form of a yellow band around the can or the name of the contents conspicuously stenciled or painted on the can in yellow."

If a number of different flammable liquids are handled in one department of a plant, identifying the contents by distinct lettering would be more desirable to prevent mixing. Also it would be desirable to stencil the following information on all portable containers for flammable liquids:

1. For flammable liquids having a flash point 20 F or below: DANGER! — EXTREMELY FLAMMABLE — Keep Away From Heat, Sparks, And Open Flame. Keep Closed When Not In Use.
2. For flammable liquids having a flash point of 20 to 80 F: WARNING! — FLAMMABLE — Keep Away From Heat, Sparks, and Open Flame. Keep Closed When Not In Use.
3. For flammable liquids having a flash point 80 to 150 F: CAUTION! — COMBUSTIBLE — Keep Away From Heat and Open Flame. Keep Closed When Not In Use.

Since these precautions are taken to prevent flammable liquids from being mixed, the containers should be kept clean so that lettering and colors can be seen at all times.



"And for twenty years of loyal service . . ."

Hazards of Ozone

Question. Can you provide us with information on the hazards of ozone? When is it safe to work on the blowers in an electrostatic precipitator? Is there a rapid method of detecting ozone concentrations where there is a possibility of some sulphur dioxide?

Answer. The best information available on ozone indicates that it injures the lungs and that exposure to as little as 20 parts per million may be lethal within a few hours. The presence of small amounts of nitrogen dioxide will increase the toxicity of ozone but small amounts of other impurities normally present in ozone may or may not increase toxicity.

Some idea of the toxic properties of this chemical may be gained from the fact that the recommended maximum acceptable concentration is set at 0.1 part per million. Ozone is a difficult gas to analyze since it is not easy to prepare known concentrations for instrument calibration. There are one or two makes of continuous ozone recorders on the market but these are expensive and require considerable technical ability to keep in operation. Primarily they are a continuous air-liquid contacting device and recording colorimeter. Their operation is based on the liberation of iodine from a buffered, neutral potassium iodide solution by the oxidant.

The Los Angeles County Air Pollution Control District uses a test for ozone whereby a standardized rubber is exposed to the atmosphere. The rubber is placed under strain and the degree of cracking indicates the ozone concentration. Time is a factor in this test and a calibration should be made with a known ozone concentration to accurately evaluate test results. If cracks appear within 40 to 60 minutes the ozone concentration is somewhere in the vicinity of 0.02 and 0.03 parts per million.

It is possible that the abovementioned test could be applied to your situation and you might wish to contact the Los Angeles Air Pollution District for further

—To page 163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T-60 Two-Tone Acetate Frame

Profiled from top quality sheet acetate, this frame embodies extra strength features in bridge, temple and endpiece areas. Bal-SAFE lenses provide a maximum degree of impact resistance . . . plano, or ground to individual worker's prescription. Rich brown temples and top rims contrast with crystal eyewires and bridge. Interchangeable Redy-Fit Side Shields may be attached or removed in an instant, depending on the job hazard.

Y-62 Brown Acetate Frame

This frame has all the quality, safety and design features of T-60 (above). Its deep, rich brown color is highly popular. All B&L acetate frames are distinguished from ordinary plastic frames by their high lustre. Complete range of eye, bridge, and temple sizes assures fit for all face shapes. Available with either rigid or adjustable nose pads.

Y-60 Flesh-Tone Acetate Frame

Here again, the only departure from the frames shown above is color. All B&L frames are profiled from extruded cellulose acetate stock of uniform texture, thickness and color, properly stabilized. The result is a much stronger frame than is possible with molded material. It has a more durable finish . . . will not crack, warp or otherwise lose its shape.

M-40 All-Metal Frame

All structural parts of B&L Metal Safety Frames are of 18% nickel silver for strength, durability, permanence of adjustment and corrosion-resistance. Special annealing, swaging, striking, drawing and forming operations produce the correct degree of resilience, malleability and tensile strength so essential to its plus value. This frame, too, is quickly adapted to meet many types of eye hazards by use of a variety of interchangeable Redy-Fit Side Shields.

Y-90 Combination Metal-Plastic

This frame combines acetate and metal in an exclusive structural idea which has unequalled advantages. The metal parts add extra strength and rigidity in the critical bridge and endpiece areas. Acetate butyrate provides the ductility and fracture-resistance desirable in eyewires. In both Flat and Edge Transverse Tests, Y-90 far surpasses all known specifications for strength. It will outlast three ordinary acetate frames. Plastic is of warm gray color.

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+ **PROTECTION** Everything about B&L Safety Eyewear is designed for strength and durability. Frame components, Bal-SAFE impact-resistant lenses . . . are engineered for a margin of protection many times that required by the U.S. Bureau of Standards.

+ **ECONOMY** When you start to figure the evaluated cost of B&L Safety Eyewear you begin to discover its true economy: extreme durability, and unique flexibility by virtue of interchangeable parts, in application to a variety of job eye hazards.

+ **WORKER ACCEPTANCE** The fact of high popularity is evident when workers are exposed to B&L Safety Eyewear styling and comfort. The ophthalmic professions have long recognized Bausch & Lomb leadership in eyewear of the finest quality.

Interchangeable Temples and Side Shields

Three styles of metal temples and two styles of wire-core plastic temples give added versatility and wearing comfort. Redy-Fit interchangeable Side Shields are available in a variety of types including wire mesh, insulated wire mesh, and in solid or perforated plastic . . . in clear or green. They are quickly attached or removed . . . according to the job hazard.

New B&L Plastic Eyeshields

Visitor-Spec is a low-priced, feather-weight coverall produced specifically as a give-away protection piece for plant visitors. It fits neatly over regular dress glasses.

Super BAL-guard is the latest development in an all-purpose coverall. Molded from soft, form-fitting vinyl, it weighs only two ounces. Fits over any type of safety or dress glasses, provides an extreme degree of protection and comfort.

Visitor-Spec

Super BAL-guard

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Houston ..... Bausch & Lomb
San Antonio ..... Bausch & Lomb
Dietz-McLean Optical
Waco ..... Bausch & Lomb

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Rockford Optical Service
Eau Claire ..... N. P. Benson Optical
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Madison ..... Bausch & Lomb
Milwaukee ..... Bausch & Lomb
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Stevens Point .... N. P. Benson Optical
Superior ..... N. P. Benson Optical
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Casper ..... Bausch & Lomb
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BOOKS AND PAMPHLETS

Radioisotope Handling

Safety Techniques for Radioactive Tracers, by J. D. Boursnell. Cambridge University Press, 32 E. Fifty-seventh St., New York 22. 68p. March, 1958. $1.75.

THIS IS A well written and easily understood book on the safe handling of radioisotopes in the laboratory. Applications discussed are primarily for the biological laboratory, but procedures are applicable to many radioactive isotope handling problems. The text does not discuss remote control handling problems, and the precautions listed do not apply for any open beta or gamma source with an activity level exceeding 50 millicuries.

The discussion of such problems as external radiation hazards, internal radiation hazards, decontamination, waste disposal, cleanliness, and personal responsibility are very concise. Classifications are given for a number of radioactive isotopes on the basis of very high, high, moderate, and low toxicity. In addition to the maximum permissible concentration values for air and water, maximum permissible amounts of each radioactive isotope have been calculated for a liquid volume of 88 gallons of water and for the volume of air contained in a room approximately 18′ x 11′ x 9′. The 88 gallons of water represent the average amount used per day, per research worker in three representative Cambridge laboratories during the past three years.

The appendices contain information on protective equipment, laboratory equipment, maximum permissible concentration levels (surface contamination), and biological waste.

E. L. ALPAUGH

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Fire Protection in Restaurants and Similar Establishments. Federation of Mutual Fire Insurance Companies, 20 N. Wacker Drive, Chicago 6. 1957. 2p.

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Safe Handling of Liquefied Petroleum Gas at Bulk Plants. Federation of Mutual Fire Insurance Companies, 20 N. Wacker Drive, Chicago 6. 1958. 2p.

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"Critical Evaluation of a Filter-Strip Smoke Sampler Used in Domestic Premises." Roy J. Shephard and others. *A.M.A. Archives of Industrial Health,* March 1958. pp. 236-252.

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"Toxicity and Mechanism of Action of Di-Syston." Thomas J. Bombinski and Kenneth P. Du Bois. *A.M.A. Archives of Industrial Health.* March 1958. pp. 192-199.

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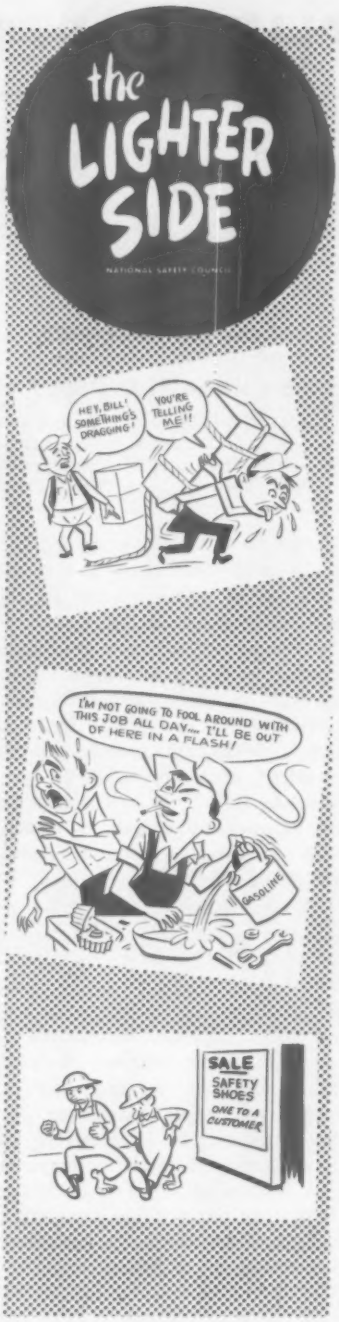

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Railway Age, Simmons-Boardman Publishing Corp., Orange, Conn.

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WIRE FROM WASHINGTON

By Harry N. Rosenfield
Washington Counsel, National Safety Council

President's Conference Studies Occupational Risks

SPURRED on by the President's charge that "eternal vigilance is the price of safety," the 10th anniversary President's Conference on Occupational Safety held a three-day conference in Washington. Its theme was "Safety Conserves Manpower . . . Manpower Builds the Future."

For the first time, this Conference recognized industrial medicine and the mining and transportation industries.

The Secretary of Labor said that "we have made tremendous progress in this country, but we still have a long way to go even in achieving control over the common hazards of today." He warned that unless we improve "we can expect about a quarter of a million more disabling injuries in 1965 than were suffered in 1957."

Benjamin F. Fairless, president of the American Iron and Steel Institute, said that "operating management has the basic responsibility for safety," and that safety should not be an additional activity but should be integrated with production. He gave high praise to the National Safety Council as "one of the greatest organizations for safety in the world today."

Ralph J. Cordiner, president of General Electric Company, stressed the principle that "voluntary action makes a greater contribution than police action . . . the relative lack of progress in highway safety, as compared to spectacular progress in industrial safety, illustrates the relative inadequacy of dependence on police action as against voluntary action to achieve greater safety." "The sound approach" . . . to achieving . . . "the goals of a safety program," he said, "is based on emphasizing the role of personal responsibility, not government or safety inspector responsibility."

George Meany, president of AFL-CIO said that "our progress has not kept abreast of known industrial hazards." He asked "Must Americans continue to make progress through tragedy?" He spoke of "the record of government failure" and asked "Why hasn't government—federal and state—contributed more effectively in the past toward progress in this area?"

Mr. Meany said labor would press for legislation to create a Federal Accident Prevention Bureau to establish national safety standards through tripartite boards. Such standards would be enforced by requiring state labor departments to meet adequate federal standards for the receipt of federal funds. He promised labor's cooperation in national and community programs for off-the-job and traffic safety, and stated that it was AFL-CIO policy to urge (1) all international and national unions to seek safety clauses in their collective bargaining contracts, and (2) affiliation with the National Safety Council.

The Conference's eight workshops reported to the President over 40 recommendations or conclusions, of which the following are selected samples:

1. There is a great need for increased organized research dealing with human motivations in relation to safe behavior;

2. Off-the-job safety should be made an integral part of the occu-

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THE MONTH IN WASHINGTON

- **3,000 leaders in industry, labor, and safety take part in President's Conference on Occupational Safety.**
- **Congress passes bill authorizing ICC to prescribe regulations for installation, maintenance, and repair of train brakes.**
- **U. S. Public Health Service establishes Division of Radiological Health to assist state agencies.**
- **Subcommittee on Traffic Safety studies possible health hazards in motor vehicle exhaust.**
- **Air Force orders investigation to determine means of insuring "maximum safety" in flights carrying bombs.**
- **President proclaims week of July 20 as National Farm Safety Week.**
- **U. S. Office of Education warns against students conducting unsupervised experiments with rockets.**

HOW SAFE ARE TEXTILE PLANTS?

Here's how 49 members of the National Safety Council's Textile Section make working conditions safer for 38,850 employees

SEVERAL months ago a 500-worker textile research center in Alabama completed its fourth year and three-millionth man-hour without disabling injury.

Coincidentally, the Cotton Manufacturers Association of Georgia cited 19 textile mill members for 39 weeks of operation without disabling injuries.

Another textile operation in Ohio last year netted 1½ million man-hours of no-lost-time in topping its own previous mark of 700,000 man-hours in the same category.

Yet, '57 headlines told our nation the horrors of a 15-death textile plant blaze in New England. Injuring 25 other workers and bringing great financial loss, the disaster dramatically underscored the agony and cost of an industrial accident.

The tragic results of poor safety practices still plague even caution-conscious companies. Regardless of a trend to built-in safety environments via automation and instrumentation, serious accident possibilities still remain in this, as in other, industries.

Industrial environment involves control of noise, lighting, odors, and plant layout designed for traffic flow. It is inspection and care of equipment, kinds of tools purchased, and even the overall management attitude toward independent contractor workers doing special jobs on mill premises. Environment means a mountain of external conditions touching the typical employee, control of which is largely management's responsibility. In this sense, environment and physical facilities often are responsible for accidents in the textile field.

Alone, each environmental condition seems to have small capacity for seriously harming the productiveness of a single plant. Collectively, these elements can greatly impair textile employees and the work they try to do.

EXCLUSIVE REPORT

A NATIONAL SAFETY COUNCIL MEMBER SURVEY

This article is based on information developed by the Inventory of Occupational Accident Prevention Activities.

Sponsored by the Member Opinion Committee of the Council's Industrial Conference, the inventory is designed to obtain specific facts on industry's actual accident prevention activities.

John Gallagher of the Industrial Department staff is conducting the inventory among members in 14 of the Council's industrial sections.

The National Safety Council, in a study of occupational accident prevention activities, sent questionnaires to 156 key members of its Textile Section. This survey was sponsored by the Member Opinion Committee of the Industrial Conference. Forty-nine completed forms were returned to the Council for evaluation, offering a 31 per cent sampling of firms queried.

Primarily, this survey compares accident prevention techniques in the Textile Section. Significantly revealed by the poll is the meaningful role of environment and physical facilities in on-the-job activities of textile plant personnel.

The survey splits plants into large (1,000 or more workers) and small categories (fewer than 1,000 employees). At this dividing point there is a tendency to switch from designating one person as responsible for plant safety to a formal, safety program and organization.

WHO MAKES INSPECTIONS
In addition to the safety department

Departments or Individuals	Standards and Regulations Used by Inspecting Agencies			
	State Laws	NFPA Regulations	ASA Standards	Other Standards
Plant Management	22%	–	12%	12%
	24	22%	22	12
Corporate Safety Dept.	20	–	10	10
	–	–	–	–
Insurance Carrier	14	–	22	10
	16	24	24	12
Plant Superintendent	8	–	8	2
	6	6	2	–
Engineer	10	–	8	2
	6	4	4	–
Maintenance	2	–	–	–
	2	–	2	–
Safety Committee	6	–	4	–
	6	4	4	–
Outside Fire Department	4	–	4	4
	20	20	20	10
Supervisors	8	–	2	2
	8	2	2	2
State	8	–	–	–
	8	4	4	4
Master Mechanic	–	–	–	–
	2	–	2	–

Machines and equipment — Exits, walkways, lighting, stairways

AUTOMATION in the textile industry. In the piece goods put up department in Dan River Mills finished cloth is packed into cartons which are automatically strapped and conveyed to the shipping department. Operator manipulates strapping machine by remote control and handling is done with a minimum of exposure. (Acme Steel Company).

Among small plants, 37 units reported, with an average of 361 workers. Of large plants, 12 completed and returned forms, representing an average of 2,032 employees. Total work force of the 49 plants is 38,850 persons.

Products made by the smaller plants range from industrial fabrics and cotton, woolen, and plastic materials to window shades, safety apparel, rope and mattresses. The larger plants make rugs, print cloth, surgical dressing, rayon tire cord, chemical fiber yarn and related products.

Scope of Survey

Each questionnaire required a maximum of 112 replies concerning mill environment and physical facilities. Subjects included: Machinery and equipment; exits, walkways, lighting, and stairways; plant housekeeping; control of fire and explosion hazards; plant illumination; toxic substances; atmospheric pollution studies; and injurious noise intensities.

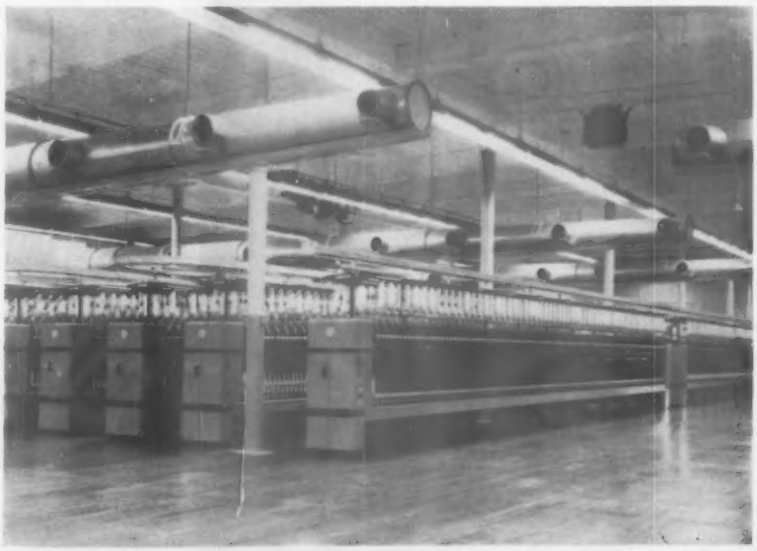
Other queries involved: Control and inspection of tools; hoisting chains, hooks, and cables; ladders; portable work stands; relationships of purchasing activities to plant safety; and safety department control over independent contractor workers.

Certain conclusions indicate the scope of this survey:

1. Safety requirements for exits, walkways, lighting, stairways, and handrails—in addition to a check by the safety department—are inspected by other personnel in almost all large mills and more than half of the smaller plants.

2. A definite policy exists between safety and purchasing departments to consider safety in all purchases in three-fourths of large factories and half of the small organizations.

3. Flammable solvents are used



SPINNING FRAMES at Dan River Mills. Department is completely air-conditioned and good housekeeping is stressed. (Reliance Electric Co.)

by three-fourths of large plants and half of the small units. In the same proportion of mills fire protection equipment is checked by agencies, in addition to the safety department, to conform with the National Fire Protection Association codes and state and municipal regulations.

A "burning permit" must be issued prior to welding in 11 of the 12 large units and in slightly less than half of the smaller operations. Among 10 of 12 large mills are trained worker fire-brigades which hold fire drills. In 22 of 37 smaller plants are similar fire-brigades. Less than half of the small plants conduct regular fire meetings or drills.

4. In all but one large factory and in three-fourths of the small operations meter checks are made on light intensities at work positions and in other areas of the mill. Ten large plants and more than half of the smaller units state these intensities conform to American Standards Association illumination requirements.

5. A centralized tool control system exists in 10 of 12 large organizations and in about half of the smaller units, with roughly the same ratios making periodic inspection of company-owned hand tools.

HOW TEXTILE PLANTS IMPROVE ENVIRONMENT

...Double-check of physical facilities by other personnel, in addition to safety department inspection.

...Consideration of safety in buying, through policy between safety and purchasing departments.

...Regular fire drills and meetings by specially-trained worker brigades.

...Periodic meter checks of light intensities at work places to conform with industrial standards.

...Centralized tool control and periodic inspection of company-owned hand tools, portable power tools.

...Selection, inspection and use of ladders to comply with safety codes.

...Safety department control over independent contractor workers regarding company safety rules and dangerous projects.

All of the large plants and more than half of the small mills periodically inspect portable power tools. Almost unanimously, these inspections require grounding for metal casings of tools to prevent shock.

6. Most of the large and less than half of the small mills use portable metal ladders. A majority of the users restrict use of metal ladders where electrical shock hazards may be present.

About two-thirds of answering plants indicate all ladders conform to the American Standard Safety Codes for ladders. Three-fourths of the large factories and two-thirds of small mills say they inspect ladders periodically.

7. Portable work stands are used in 11 of 12 large and in half of the small plants. In 10 large

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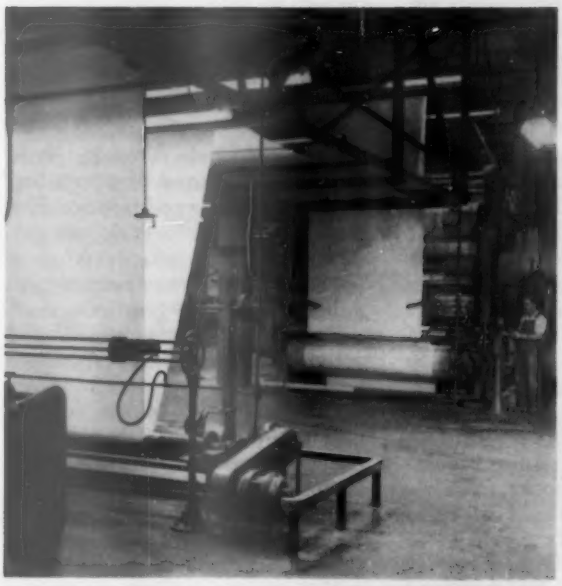

SHEETING being finished by application of starch and finishing oils. Finishing ranges are fenced off by bumper guards and moving parts enclosed. (Dan River Mills)

TWISTING MACHINE in a carpet mill. Here several strands of yarn are twisted into a heavier strand for strength, texture or color. (C. H. Masland & Sons.)

Must we continue to make

Progress Through Tragedy?

By GEORGE MEANY

ONCE again we are privileged to participate in the President's Conference on Occupational Safety where we can discuss together — government-employer-worker — the many phases of this very important problem.

Once again we are in a position to review the hard-won advances made in our persistent fight against occupational hazards.

But on this occasion—the tenth anniversary of the Conference—the theme for our meeting is not the achievements of the past but the future direction of America's effort to minimize the needless toll of death, pain, and mutilation among workers.

This is a challenge and an opportunity. It is a challenge that can be met by a candid review of our attitudes, our objectives and our existing policies in the field of occupational safety. It is an opportunity to envision the broad outlines of development our efforts should follow in the future if we are to resolve even the foreseeable problems of safety.

For example, despite appreciable progress since the turn of the century in the elimination of some unnecessarily hazardous conditions of employment in industry, the cold fact is that unsafe working conditions continue to bring death and injury to industrial workers.

In other words, our progress has not kept abreast of known industrial hazards at a time when we face the certainty of new risks which are now looming on the horizon. If we of labor, management, and government are not to be reduced to a position of being well-disposed but ineffective leaders of a movement created to promote safe conditions on the job, then we must do some hard thinking about the future now.

By way of a start, let's ask ourselves frankly, when does America get sufficiently aroused to make pronounced strides toward the goals of occupational safety?

Is it aroused by a skillfully-designed safety program in some one industry or even in several industries?

Is it aroused by a well-conceived local, state, or national advertising program which clearly depicts the unnecessary loss of life and forcefully states how tragedy could so easily be avoided?

Or is America aroused only by some horrifying, death-dealing catastrophe?

Think back to the Triangle Shirt Waist Company tragedy on Mar. 25, 1911, when scores of young women burned to death in a factory where there was neither sufficient space between the rows of sewing machines nor enough doors to let them escape with their lives from that fire. Beside it, place another factory fire which occurred on Mar. 19, 1958—almost 47 years later to the day and just several blocks away from the scene of the original tragedy.

A Shocking Record

Then recall that the present Mayor of New York City—Mayor Wagner—said that no fire regulations now on the books were violated but that he would call upon the New York City Council "to enact appropriate ordinances as soon as possible." He promptly enumerated four specific ordinances which "struck him immediately" as he toured the ruined loft building.

Think back to the series of coal mining tragedies which occurred with sickening regularity in different states.

Think back to the living dead who were the men and women employed to print radium numerals on watch faces while their own faces showed the ravages of "phossy jaw."

As you recall these and many other equally shocking catastrophes, also bring to mind the observation made by some people that these tragedies were probably blessings in disguise because these martyred workers achieved in death what they could not obtain while they lived: Progress toward safe working conditions for themselves and the generations of workers who have followed them.

Inhuman as it may sound, our record of safety development is clear: America has made progress through tragedy.

This gruesome fact does not mean that some progress is not made through the steady, unspectacular and common sense voluntary programs of preventing industrial deaths and injuries. But these laudable efforts do not galvanize America into the kind of action which massive reduction of industrial hazards requires.

Enlightened management and active trade unionists in America have advanced the cause of safety by their voluntary efforts, and our nation is indebted to them. Their progress however, does not have an impact in the one place where all America acts: In the halls of Congress and in the legislatures of the states and territories of this nation.

In meeting the challenge presented to us by this Conference

GEORGE MEANY, is President, AFL-CIO. This article is the text of an address before the President's Conference on Occupational Safety, Washington, D. C., March 27, 1958.

Progress has not kept pace with hazards; new risks loom on the horizon. How can we check them without waiting for another disaster to arouse the nation?

George Meany

concerning future problems in the area of occupational hazards, we must propose to ourselves this searching question:

Must America continue to make progress through tragedy?

If the answer to this question is to be "no," then we must prepare to find the answer to another very searching question: Why hasn't government—Federal and State—contributed more effectively in the past toward progress in this area? What must be done to insure that government will not lag behind labor and management in their efforts to minimize occupational hazards?

We can accept as a starting point that government actions reflect the will of its citizens in our democracy. But who opposes safety legislation?

Is there any citizen or group of citizens who will state publicly that they oppose legislation needed to prevent death, maiming, or injury to workers?

Where are the legislators who demand that there be more tragedies of a catastrophic magnitude before they can spare the time to enact preventive legislation?

Of course, the answers to these questions would be an indignant "no," if a public poll were taken. Unfortunately, the truth will not be found in words but in deeds. Yet the sum total of legislative deeds is that progress in the area of safety is not only tortuously slow, but it is wilfully hobbled by refusals to provide funds for endorsement and effective staffing. This is neither the time nor place to document the record of governmental failure. This audience knows it full well.

We know full well what has to be done if future government action is not going to be a carbon copy of the past failures. First of all, labor and management must take the leadership in focusing the full glare of public disclosure on the "Yes, but . . ." attitudes of legislators.

We must jointly appear before every legislative body and jointly demand the conversion of words into deeds. We must jointly demand enactment of legislation that is so badly needed now and we must be equally alert in the future when new problems require legislative action.

In blunt words this means that the Chamber of Commerce and the National Association of Manufacturers must stand shoulder to shoulder with the AFL-CIO before legislative bodies and fight for preventive legislation.

It means, too, that the ever-growing number of private organizations whose purpose is establishment of safety standards and safety programs must step out of their research laboratories more often to let legislatures know what is happening in the fields of scientific and industrial development.

A Five-Point Program

Let me say here and now that the AFL-CIO is more than ready to cooperate with all groups who are in deed, as well as in word, ready to have enacted legislation that is effective both on the law books and in the mines, fields, and factories of America.

To give concreteness to this proposal allow me to sketch the program for safety and industrial health adopted at our national convention in December, 1957. At that time the assembled delegates unanimously instructed the Executive Council to implement the following legislative program in the field of safety and industrial health:

1. Press for enactment of legislation in both the United States and Canada to create a Federal Accident Prevention Bureau to establish, through tri-partite boards, national safety standards.

Such standards must be enforced by requiring state and provincial

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COUNCIL REPRESENTED AT PRESIDENT'S CONFERENCE

Several officers and staff members of the National Safety Council had active parts in the program of the President's Conference on Occupational Safety held in Washington, D. C., March 25-27.

P. L. Siemiller, the Council's Vice-President for Labor; Benjamin F. Fairless, Trustee; Henry B. Duffus, R. H. Ferguson, Roy P. Hamilton, Herman J. Spoerer, and Donald G. Vaughan, Directors, and David L. Arm, manager of the Industrial Department, appeared as speakers.

Serving the Conference as consultants in the preparation of the program were Lloyd D. Utter, chairman of the Labor Conference; H. Gene Miller, director of the Research and Statistics Department, A. M. Baltzer, director of the Small Business and Associations Program, and Wayne P. Hughes, director of the School and College Division.

General G. C. Stewart, the Council's executive vice-president, was invited to sit on the platform at the session addressed by President Eisenhower.

A summary of the highlights of the Conference will be found in the "Wire from Washington," page 17.

FORT LOUDON dam on the Tennessee near Knoxville, one of nine on the main stream. Earth and rock dam on the upper right, then the lock, spillway section, power house, and switchyard. Dam is 122 feet high and 4,190 feet long.

Safety is Part of TVA Plans

By D. E. NOLTING

The project was a year old before the safety program really got started. But since then, progress has been consistent

SAFETY for each new TVA project is woven into the plans at the drawing board stage. The day work is started, a safety engineer is there to assist management and construction forces in launching a dynamic and practical program of accident prevention.

This was not true at the beginning of TVA. It was a year old before a safety director was appointed in June, 1934. Safety seemed to be an afterthought rather than an integral part of operation, and this handicap is reflected in the experience of the first two years.

Statistics. The program began to produce results in 1936. If the frequency rate had been the same in 1957 as in 1934, there would have been 1,560 disabling injuries instead of 134.

In vehicular accident prevention, the average frequency rate of 2.38 accidents per 100,000 miles for the first five years was reduced to 0.66 for the most recent five-year period. This latter figure compares favorably with 1.58, the latest rate (1956) of 1,871 fleets of vehicles, as reported by the National Safety Council.

Through June, 1957, TVA has driven more than 461 million miles, with 26 traffic fatalities, to produce a mileage death rate of 5.6 deaths per 100-million miles. This rate compares with the U. S. average rate of 10.3 for the corresponding period.

Figure 1 shows a comparison of average frequency and severity rates for the first five years with the last five years. The over-

FIGURE 1. IMPROVEMENT ON PAST PERFORMANCE

Major TVA Units	Average Rates For: First Five Years 1934-1938		Last Five Years 1953-1957	
	Frequency	Severity	Frequency	Severity
Plant Construction	48.08	7,991	4.05	1,936
Power	37.26	9,696	7.12	2,112
Chemical Engineering	35.36	4,648	6.41	1,389
Total TVA Operations	43.09	5.255	5.13	1,741

D. E. NOLTING is Assistant Chief, Safety Branch, Tennessee Valley Authority, Chattanooga, Tenn.

all figures represent an 88 per cent reduction in frequency and a 67 per cent reduction in severity from the earlier years to the most recent years.

Engineering for safety. The Safety Branch serves management in an advisory capacity in identifying accident causes and recommending preventive measures. Through the years, proposed plans have been reviewed and advice given engineering and design personnel relative to adequate provisions of safety features in the design of structures.

Safety engineers also assist in determining and securing compliance of contractors with safe practices and in the application of engineering controls to industrial hygiene problems.

TVA OFFICIALS are proud of the four Awards of Honor from the National Safety Council won by the Agency as a whole since 1953.

First-aid training. Ever since the early days of TVA, first-aid training has been provided for employees as a means of promoting safety and saving life. A corps of instructors (employees) of the Bureau of Mines and American Red Cross courses remains qualified for this purpose. To date, a total of nearly 20,000 employees have been certified, and thousands of others have received brush-up or refresher courses of shorter than standard duration.

It is estimated that about half of all persons presently employed have had a standard course. As a result of emphasizing accident prevention in these courses, the records generally indicate lower rates in organizational units having higher percentages of first-aid trained employees.

Personal protection. A safety requirement, saving many lives and preventing many injuries from accidents each year, dictates that hard hats must be worn by everyone (including visitors) on construction and other work where hazards so indicate. Personal protective equipment, such as hard hats and goggles, is furnished to employees.

Hundreds of employees who wear prescription glasses and are subject to eye hazards now have improved eye protection as a result of purchasing corrective-protective eyewear through TVA. Provision of and training in the use of various types of respiratory devices has done much to safeguard the lives and health of workers.

Explosives. TVA has used trainloads of explosives. Blasts using several hundred thousand pounds at a time in quarry operations have not been uncommon. In 1943

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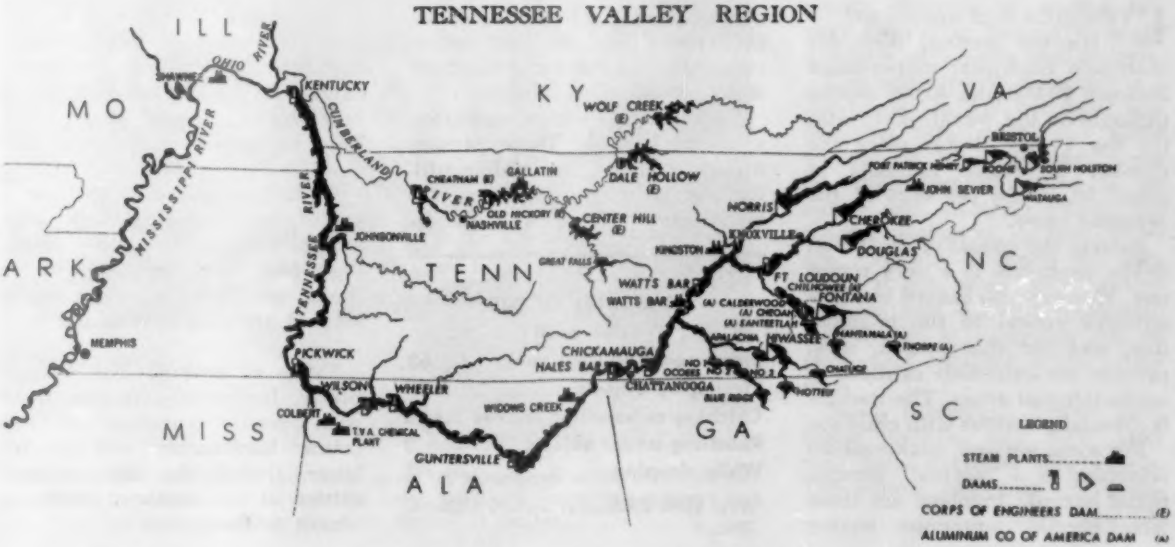
TENNESSEE VALLEY REGION



SNAKES like rocky ledges for their siestas and this potential victim is in a highly dangerous spot. Bites on the upper extremities are deadly.

SNAKE-BITE KITS are standard equipment for civilian and military personnel in infested areas. (Photos by Medical Supply Co.)

If You Can't Avoid Snakes...

You'd better learn to recognize the bad ones, know their habits . . . and carry a snake-bite kit

EVER HEAR of *ophidiasis?* It's the medical term for snakebite. Each year snakes cause between 30,000 and 40,000 deaths throughout the world. Estimates for the United States place the number of deaths annually at about 50, or 2.5 per cent of the reported cases.

Among the causes of accidental death, snakebite is a very minor one. However, no hazard makes a stronger appeal to the imagination, and for that reason, most persons are extremely cautious in snake-infested areas. The menace is especially serious with children.

For some persons, snake-venom poisoning is a "normal" occupational hazard. Involved are those who handle poisonous snakes routinely—snake farm employees, professional and amateur collectors, scientists, zoo curators, showmen, and religious faddists.

For others, poisonous snakes are a casual hazard. These persons include construction, public utility and petroleum workers, and vacationers. Those who handle snakes for a living or a hobby suffer twice as many bites as those encountering snakes unexpectedly. Many snake-handlers have been bitten several times, and bites do not seem to bring immunity.

Protective measures include a knowledge of snakes and their habits, wearing protective clothing where they are likely to be found, and carrying a snakebite kit and knowing how to use it.

HOW BITES OCCUR*
(Per cent)

Stepping on or near snake	**63**
Picking up objects	**27**
Catching or handling snakes	**6**
Reaching under objects	**3**
While sleeping	**1**

**New York Zoological Society Bulletin, 1952.*

Types of snakes. The United States, fortunately, is free from such deadly varieties as the cobra, bushmaster and fer-de-lance, though the diamondback rattler of the southern states is almost as dangerous.

Venomous snakes in the U.S.A. fall into four broad categories:

1. Rattlesnakes.
2. Cottonmouth or water moccasin.
3. Copperhead.
4. Coral snakes.

The first three are called "pit vipers" because of a shallow opening or pit on either side of the head between the eyes and the nostrils. All have V-shaped heads. Some harmless snakes also have heads of this shape, and many have been killed through misidentification. A person confronted suddenly by a snake is not likely to look for the pits.

The rattlesnake, of course, is distinguished by its rattles.

Cottonmouth moccasins have dark olive or dark brown markings. When annoyed, it draws back its head and opens its mouth wide, exposing the cotton-white mouth tissue from which its name is derived.

Copperheads have a general pattern of copperish, chestnut, or reddish-brown crossbands on a lighter ground color.

The coral snake is the only poisonous snake in North America having a blunt nose. It is brightly colored with wide bands of black, red, and yellow. It is distinguished from a non-poisonous variety by its black snout.

Severity of poisoning depends on:

1. Size and species of snake.
2. Age, weight, and general condition of the victim.
3. Toxicity of venom of specific snake.

Rattlers and moccasins are the most dangerous; copperheads and pigmy rattlers are less so. While coral snakes have the most toxic venom, they have small mouths which makes it difficult for them to secure a hold on any part of the adult body except the fingers and toes. They are less numerous than the pit vipers.

PARTS OF BODY BITTEN*
(Per cent)

Legs	**57**
Foot	**40**
Ankle	**29**
Shin	**29**
Thigh	**2**
Arms	**42**
Finger	**51**
Hand	**31**
Forearm	**10**
Wrist	**8**
Head or trunk	**1**
Total	**100**

**New York Zoological Society Bulletin, 1952.*

HIGH BOOTS, preferably of the "snake-proof" type, are needed for situations like this. When trousers are worn over the boots, the snake has a larger target and may strike the pants instead of the leg.

Infested areas. Snake population, like that of other wildlife, decreases in direct proportion to the increase in other wildlife. Snakes are, therefore, most numerous in and around undeveloped lands. Few such reptiles are found in cultivated rural areas and fewer still in cities. They multiply rapidly when protected by national parks, forest preserves, or undeveloped areas.

The presence of snakes in any area depends on food supply, temperature, and habits.

Snakes subsist on a wide variety of animal life, such as insects, frogs, toads, lizards, mice, rats, squirrels, rabbits, groundhogs, and birds. Some non-poisonous varieties of snakes are very helpful in destroying large numbers of insects and rodents.

The cottonmouth moccasin is a scavenger. It will eat dead and decaying fish, frogs, and other aquatic life. This may account for the high bacteria count in its mouth and, to some extent, for the seriousness of its bite. Bites are generally followed by gangrene which, even with prompt first aid and medical treatment, may result in complete loss or permanent crippling of the bitten limb.

Many poisonous snakes have septic mouths, and their bites may have bacterial side effects. The venom increases the possi-

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(Fiction)

What thoughts chase through a safety man's mind when his home phone rings after hours? Is it going to be the news he dreads most? Maybe you've had an experience like this one.

NIGHT CALL

By BILL ANDREWS

May 2, 1958

SOMETIMES, even in safety work, you have good months. It seemed that everything I touched in April turned, if not to gold, at least to progress, advance, satisfaction.

We got our new foreman training program launched just before Easter, and it has taken hold. There's a life and zip to the discussions, yet we're also getting across sound and solid instruction in the basics of foremanship.

I know, and I've let the front office know, how much of the success of this program is based on the modern group dynamics ideas of Lee Arthur, one of my two chief assistants. But that doesn't alter the facts: first, that I picked and trained Lee; and, second, that his technique had to be wedded to my content-material.

So, we've got a winner—and it doesn't make me feel less a winner to share the credit.

Another gift that April brought was an upped budget for project safety work. I didn't get all I asked for—if I had, I suppose, I'd be kicking myself for not asking for more. But I got more than I expected and I got it where it was most needed.

It means quite a chunk of additional money for visual aids and projection equipment. There's even an allotment for an introductory safety slidefilm to be used in orienting new employees —all made on our property to our specifications.

The budget increase means that I can add a junior safety engineer to concentrate on inspections. I'm not taking Lee or Dan off that work— or myself, either. It's too basic. But it means extra hours a month in which Lee can concentrate on educational work and Dan can work on straight engineering and on statistical research.

Finally, we all got salary raises —good ones.

* * *

But my satisfactions aren't all based on the training program and the budget.

We've had some real success in winning over stubborn management men to enthusiasm for safety. Mike Day of Lanton, for one. When his shop opened on the project seven months ago, he was pretty cool toward me. A little later, he tangled with Lee over what he felt was a flip and cynical attitude on Lee's part. Actually, all Lee had done was try to soften a valid criticism with a wisecrack, but Mike's the tough, serious type who doesn't go for humor.

It was Dan who really cracked Mike's armor. Mike was getting some minor dermatosis cases, and I sent Dan in to take samples of dusts, cutting oils, and anything else that might provide a clue. Mike tolerated him, because Dan is quiet and serious and doesn't get in the way.

Finally, after a week of scouting, after getting analyses of the samples, after studying the records of complaining workers, after going to Chicago to talk to a couple of top industrial hygienists, and after a final week of night work when he was doing something mysterious with a slide rule, Dan went back to Mike. Mike was brusque and disinterested; Dan was quiet, sure of his ground, and very earnest. Finally, because he is really a right guy, Mike agreed to make a minor change in work rules in one operation. And that change—it was

made in early March—brought the cases to a flat and complete stop. So, by the end of April Mike was convinced that Dan was a genius and that I must not be too stupid, if I had sense enough to employ Dan.

Another group we made progress with was truckers. I wrote last month about my run-in with the trucker who was convinced we were stupidly arbitrary on traffic rules. After I talked to him, but did not report him to his employer, he began talking to other truckers, and he even had me to a chowder-and-poker session with some of them. The plant protection chief tells me that traffic violations by truckers on the property are down substantially.

All these evidences of success taste good, and so does the praise I got when the general manager called me in to tell me about my own raise.

Yet, in the end, all this would be empty and tasteless, if it was not for one other thing—the only one, perhaps, that really matters. It's this:

There hasn't been a lost-time work accident on the project anywhere (not even in construction) since the first of February.

* * *

So tonight, Sue and I are celebrating. Dan's with us, and so is Lee and his bride. There are a couple of old friends from other companies who happened to drive through today, and a couple of non-safety engineers from the project with their wives.

I'm enjoying being the host. I'm enjoying it so much that Sue is beginning to look at me with that wifely don't-put-on-the-big-shot-act-with-me look. Maybe I've been bragging too much. She's been right before when she thought I was, and she has a deft but gentle way of reminding me that I'm the same guy who has some major defeats behind him as well as a few triumphs.

Maybe . . .

And then, the phone rang.

The ringing didn't stop the chatter and laughter of the party—it just cut it in half. Sue was moving to the phone at once. Lee and Dan looked quickly at me, then sat quietly staring at the door through which Sue left the room.

I saw Lee's right hand at his side, with fingers crossed. The visiting safety men looked at me questioningly, then turned back to their shop talk, while the rest of the group rattled on in that blissful unconcern about telephones which no safety man can ever have this side of retirement, and particularly telephones that ring late at night.

All the sense of confidence and self-admiration drained out of me, and I waited like the greenest and most ignorant safety engineer fresh out of school.

I knew, all over again, the sense of helplessness and fear that, in this business, walk always alongside a man, even when he has come to feel strong and competent.

It wasn't a long wait. Sue, knowing my tension from years of living with it, spoke at once from the doorway. "It's the Johnsons. Their baby-sitter didn't show up, so they can't come."

* * *

I hope I kept on being a good host. But the incident knocked out, for the time being, the temptation to think of myself as a superman. I know I'm just a guy trying to do a job and never able to do it so well that I won't be afraid of the next telephone call.

THE PATSY

Do you smoke "Gaspies" because outdoor type he-men do so on TV?

Do you wear a blue suit, or a sack, because Madison Avenue—or Paree—says it's right?

Do you wear short shorts?

Do you take anti-acid pills so your stomach juices won't eat holes in your handkerchief?

Do you wonder where the yellow went?

Do you get shook up when the guy toots his horn behind you the second the light changes to green?

Do you flip at the person who cuts you off—or the slowpoke?

Do you burn when someone bucks the line ahead of you—or someone accuses you unjustly?

Do you refuse to obey safety rules—or wear safety protective devices—because someone might think it's sissy stuff?

Well be my guest, friend. You're a typical red-blooded American-type patsy. You probably don't realize it; and when you do, it may be too late.

It is estimated each of us is observed by, or affects, some 600 persons every day. What a patsy paradise!

Are you proud of the impression you leave on your audience? Are you satisfied with the way you react to others?

When you take a chance and win—someone may be patsied into taking a chance and lose. When you set a poor example, break a rule or law, others may be patsied into following your lead.

The young, subordinates, and friends are most vulnerable—and their lives may be in your hands. Your life is in the hands of others.

You can afford to be a patsy to the advertising gimmicks—but not with your life.

ROBERT D. GIDEL

HOW FAR HAVE WE COME

Industrial Department manager's report to President's Conference shows industrial safety progress made in the decade 1948-1957

By DAVID L. ARM

AN EVALUATION of experience over any period since the initiation of organized occupational safety programs could not fail to indicate great progress. As an example, the occupational injury frequency rate in 1956 was 51 per cent below that of the average during the five pre-World War II years while the severity rate declined 53 per cent over the same period.

Since we have been asked to consider the progress from 1948 through 1957, and because we believe safety directors are more interested in facts than in generalities, we have prepared the chart series, *An Evaluation of Occupational Safety Experience —1948 to 1957.*

Figure 1. This shows year-to-year variation of total work force and total occupational deaths and disabling injuries. All totals include workers in all occupations except agriculture and transportation. Transportation has been deleted because it has not been included in previous Presidents' Conferences, while agriculture was included only in the 1956 Conference. It should be noted that while the work force increased from 46,700,000 in 1948 to 52,200,000 in 1957, or an increase of 12 per cent, occupational deaths decreased 3 per cent and injuries decreased 5 per cent over this period. The decrease in deaths from the Korean War peak in 1951 to 1957 was 11 per cent while injuries decreased 10 per cent in the same period. Note the peaks of deaths and injuries which occurred in 1951. The increase in the work force from 1949 to 1950 was 1,600,000. Possibly these peaks can be attributed to this large group of new workers, since it is believed that a lag of approximately one year occurs between the assimilation of a large group of workers and their effect on accident statistics.

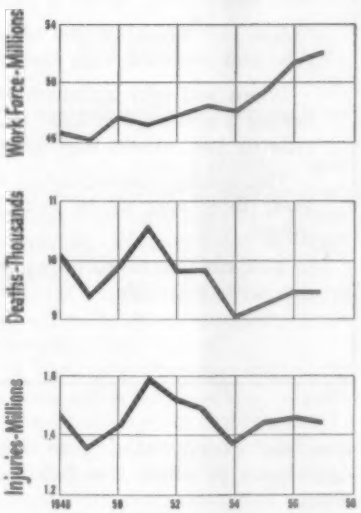

Figure 1. The curve at the top of this chart represents the work force in millions. All workers in all occupations with the exception of agriculture and transportation are included. The second curve represents occupational deaths in thousands. The third shows the total number of disabling injuries in each year in millions.

* * *

It should be noted that while the work force increased from 46,700,000 in 1948 to 52,200,000 in 1957, or an increase of 11.8 per cent, occupational deaths decreased 3.4 per cent and injuries decreased 5.0 per cent over this period. The decrease in deaths from 1951 to 1957 was 11.3 per cent while injuries decreased 10.7 per cent in that period.

Figure 2. A chart of the death rates for the period of 1948 through 1957 in deaths per 100,000 workers. The rate for all workers (excluding agriculture and transportation) decreased 21 per cent during this period.

On this chart are shown the ten-year death rates for mining (including quarrying, oil and gas wells), construction and manufacturing. Separate curves for

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DAVID L. ARM is manager, Industrial Department, National Safety Council. This article was presented originally at The President's Conference on Occupational Safety, Washington, D.C., March 25, 1958.

IN TEN YEARS?

public utilities, trades, and services are not included, because the death rates for these industries do not vary significantly from those for manufacturing. Transportation and agriculture are shown in order to provide a comparison with the occupational groups under consideration. While the curves for mining, construction, manufacturing, and all workers show progress, a comparison of others with manufacturing is enlightening. The peak in mining in 1951 is believed to be due largely to one catastrophe which claimed the lives of 119 miners.

Figure 3. This shows disabling injuries in thousands per 100,000 workers. The net decrease over the ten-year period for all workers was 12 per cent, while the 1951-1957 decrease amounted to 19 per cent.

Figure 4. This figure indicates the trends in the death rates and injury rates over a ten-year period using the 1948 rates as a base. In the order of magnitude the percentage decreases in the death rate were:

Construction	11%
All workers	16%
Mining	30%
Manufacturing	35%

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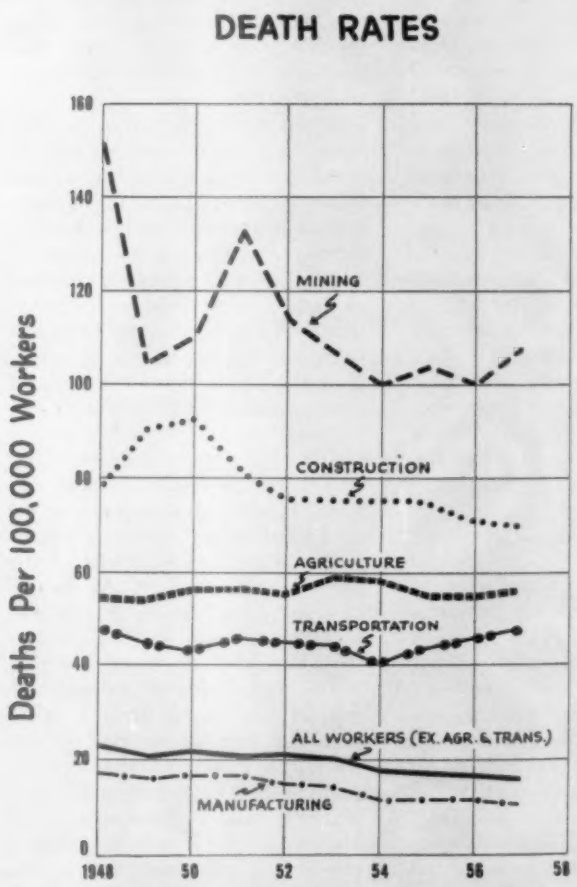

Figure 2. A chart of the death rates for the period 1948 through 1957 in deaths per 100,000 workers. The rate for all workers (excluding agriculture and transportation) decreased 21.7 per cent during this period.

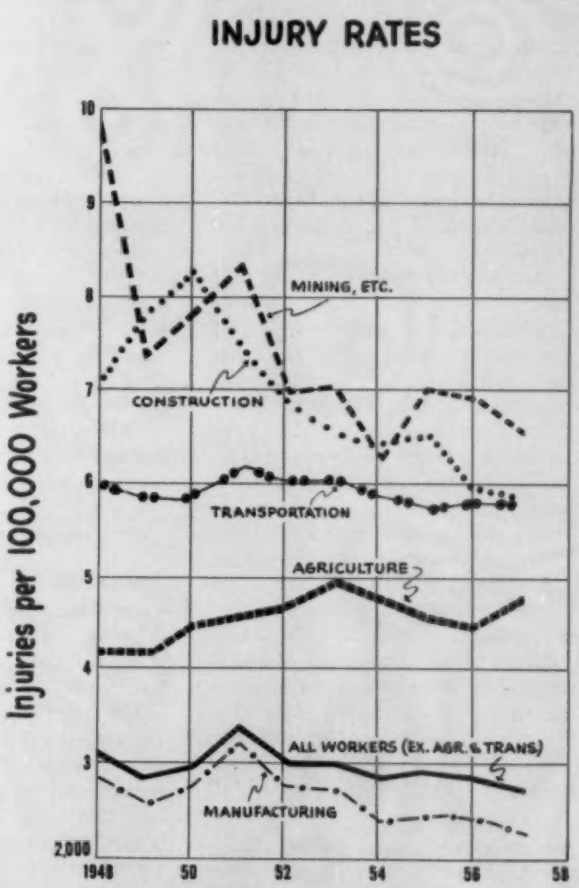

Figure 3. Figure 3 represents disabling injuries per 100,000 workers. The net decrease over the ten-year period for all workers was 12 per cent, while the 1951-1957 decrease amounted to 19.5 per cent.

HEALTH EDUCATION Helps Our Safety Program

By H. WATKINS ELLERSON, JR.

With an established safety program, it's easy to include health topics. The long-range benefits are substantial

OUR PERSONNEL manager recently observed that whenever his department had a new idea or program it took a lot of time to sell operations people on the change. Now I find myself trying to sell personnel people on a new idea.

Since I am primarily concerned with combating the ravages of cancer, most of my statistics and experiences will relate to the disease. However, what I say about cancer is probably true—to a greater degree—about heart disease, the No. 1 killer in America today.

At the present rate, cancer will take the lives of more than a million skilled and semi-skilled workers in this country in the next seven years. Cancer, combined with heart and circulatory diseases, will cause the deaths of between 3 and 4 million workers, unless we do something about it now.

We know that education has reduced deaths and disabilities from traumas. This is the basis for industrial and public accident prevention programs. Likewise, education of American workers regarding so-called dread diseases definitely shows an improvement in our experience with deaths from these causes. We know, for instance, that 50 per cent of all deaths caused by cancer can be avoided if the victims are educated to recognize the early symptoms and to seek early diagnosis and treatment.

If the same percentage of cure through education holds true for heart and circulatory diseases, it would be possible to save the lives of 1½ to 2 million industrial workers between now and 1965, at which time it is expected that American industry will start feeling a real pinch due to shortages of available workers in these categories.

Also, one of the largest life insurance companies in America uses defensive education in a series of national advertisements concerning heart and circulatory diseases. And, after all, these people would not spend large sums of money on this program if they did not believe it produces public service *and* economic results.

Early Diagnosis

Right here in the Charlotte area an outstanding cytology program is being carried on by Dr. Kimmelstiel and his associates through which 40,000 women were examined last year for internal malignancies. As a result of these examinations, 150 to 175 early cancers were uncovered which can be cured. Unfortunately, about 200 cancers in the late incurable stages were also uncovered. This is a good example of what defensive education can do and is doing right here in our own backyard and the results which can be obtained through early detection and treatment.

This problem not only creates a moral obligation to industry but a financial obligation as well. For instance, deaths and disabilities resulting from heart and circulatory diseases, when they occur on the job, have been declared compensable by Industrial Commissions in many cases.

About four years ago, the disabling injury frequency rate of the paper industry in the United States stood at about 11.5 per million man-hours. The frequency rate at my company was approximately 38—more than three times as high. We decided to do something. We revised completely our safety programs, getting away from the safety committee form of control and went to complete employee coverage through a system of "crew safety programs" by which every employee was exposed to safety training as carried on through the operating supervisors with the assistance of the personnel department. At the end of a year, our frequency rate was about 17.5— still not as good as the 9.5 for the industry as a whole, but much improved. In explanation of this sharp drop, I might point out that we stepped up radically physical improvements to plant safety such as additional machine guards, handrails, steps, walkways, etc., and emphasized the issuing and wearing of protective personal items in certain areas of high exposure. At this time, we re-evaluated our safety program and broadened its cover-

H. Watkins Ellerson, Jr., is Vice-President and General Superintendent, Halifax Paper Company, Inc., Roanoke Rapids, N. C., and Director, North Carolina Division, American Cancer Society. This article has been condensed from a talk before the Charlotte Area Personnel Managers Association.

age to include off-the-job accidents such as home accidents, automobile accidents, hunting and vacation accidents just prior to the beginning of these seasons, and the like. At the end of two years, the industry frequency rate was approximately 9 and ours had come down to 12.75.

Just about that time, we lost four highly skilled employees—one of whom was a foreman—within three or four months of each other; two as a result of cancer, and two as a result of heart disease. With these losses strongly in mind, we took another hard look at the total situation and came to the conclusion that the basic objective of any safety program was to *keep the man on the job*, and certainly an employee is just as lost to his job and his company when he is disabled or dies from cancer as he is if he falls off a scaffold at the mill and suffers total disability or death. This conclusion led us to believe that general health education should be included as a part of our overall safety program.

Tailor-Made Programs

Since the safety programs were already well established and accepted by the employees and the company, we decided that we could include health education as an integral part without additional time or cost to the employees or the company, especially if the health education programs were tailor-made to fit into the already established pattern of safety programs.

We pay our employees for attending safety meetings and, from the results obtained, we are convinced that not only is the cost justified, but it is the only way to accomplish productive attendance and interest. We know that a large part of the cost involved has been returned to the company through its improved experience with our insurance carrier. Also, in the case of the four men mentioned above, the personnel department estimated that their replacement cost the company in the neighborhood of five to six thousand dollars, which estimate does not, I am sure, include all the so-called hidden costs. Since our average hourly rate is $2.13 per hour among our hourly-paid employees, the loss of these four men would have paid for something over 2,500 man-hours of attendance at safety meetings, which is approximately one-third the number of hours paid each year for this purpose. If health education had been included back then, we would also probably have two of these four men still on our payroll.

Beginning in 1956, we incorporated into our April safety meetings a program on the forms of cancer, early symptoms, cures, and present cure rates. Last year we included a basic program on heart and circulatory diseases. This year we have already included, in our regular safety programs, sessions on t.b., polio, and heart; and, next month we are scheduling the program on cancer.

Where a company has a medical department separate from the personnel or safety department, it might be more appropriate to allow the medical department to direct the health education pro-

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Safety by Sign Language

James Long and John Ames of Rocketdyne "listen" as Safety Committeeman Frank Bush, right, supplements written "safety" with sign language meaning "how." The message gets across, although all three employees are deaf.

Deafness might be considered an asset to Frank Bush, tool engineer, in his responsibility as permanent safety committeeman at Rocketdyne, Division of North American Aviation, Canoga Park, Calif. Sharing this handicap with 15 other deaf workers in the firm, he can communicate safety instructions and indoctrination through sign language and methods not involving sound.

"They are very observing," he says, "their eyes being trained in place of the hearing sense. And they have a sensitive feeling for vibrations."

Bush capitalizes on these observational powers, cautioning the deaf employees to be constantly on the visual alert for overhead loads, vehicles moving along aisles, and floor-level obstacles.

He finds the 15 workers enthusiastic to discuss what work other deaf employees are doing, their own jobs and how they can improve them, what their classifications are, and other queries related to safety.

IDEAS THAT WORKED

Devices and Ideas to Help Your Safety Program

By Arthur S. Kelly, Industrial Department, NSC

Tilt!

A safety program committee and a safety engineer whose hobby is making gadgets pooled their talents and came up with a bell ringer of an idea. The idea was to create a device which would illustrate dramatically that repeated unsafe acts develop into unsafe work habits which invite accidents and injuries.

With a lot of ingenuity and parts from an old pinball machine, the Game of Chance was built at the J. F. Queeny Plant of Monsanto Chemical Co., St. Louis, Mo.

Here's how it works. When an employee pushes the button (takes a chance) he starts a chain of events over which he has no control. The pinball selectors, at random, decide whether the chance taker is lucky and gets off free, or, if he is injured, what the injury is and how serious.

A minor injury lights up red lights and rings a bell, but a major injury sets off a squawking klaxon.

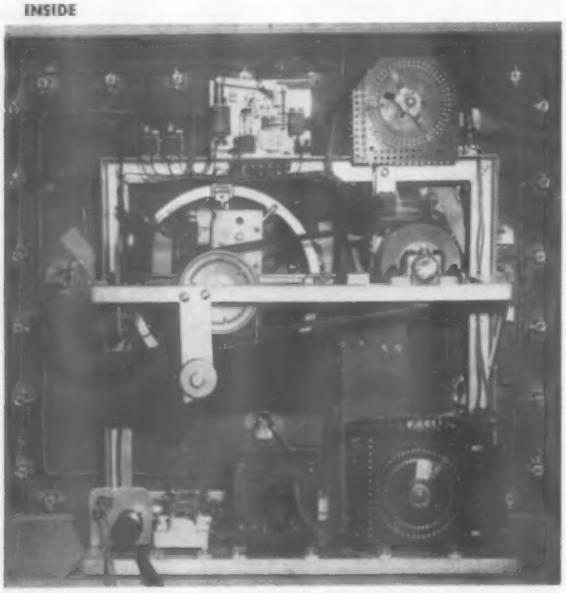
Naturally this idea attracted a lot of attention. More to the point, Mr. Lyndall Grosch, who is the gadgeteer, reports it was effective. Employees were more careful to wear their safety spectacles and to observe other safety work practices.

This device was one of many constantly changing lines of attack to build and maintain employee cooperation and interest in preventing accidents, resulting in accumulating 2,000,000 man-hours without a disabling injury in 165 days.

Submitted by Lyndall Grosch, safety engineer, J. F. Queeny Plant, Monsanto Chemical Co., St. Louis, Mo.

OUTSIDE

INSIDE



WINNER FOR APRIL

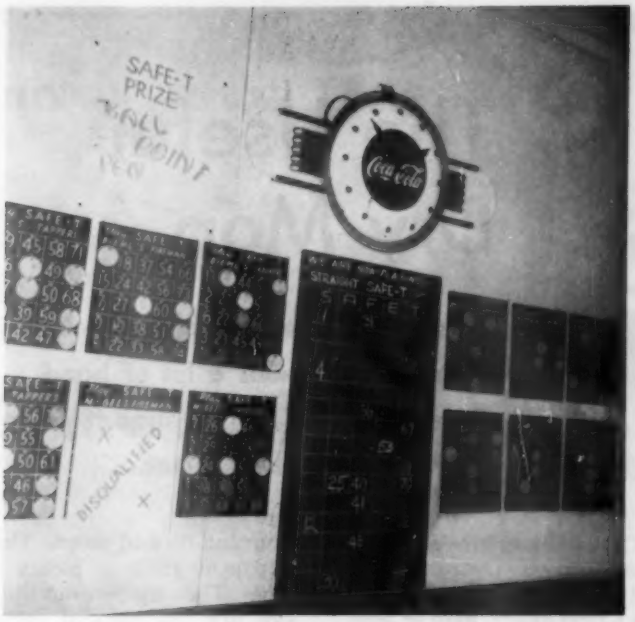
April's winner was "Hexed Circle," submitted by Seth Jackson, safety officer, U. S. D. A. Forest Service, Washington, D. C. Mr. Jackson's idea was a painted semicircle on the floor warning of the swing of a door. On page 70 is a reader's suggestion for a further refinement of this device.

Bingo at Lunch

This contest, known as Safe-T Contest, is a converted bingo game developed at the Keokuk Electro-Metals Company, Keokuk, Iowa.

Plant personnel may be divided into teams, shifts, or crews as evenly as possible in relation to number and exposure to various plant hazards. Each group is represented by a Safe-T Card in the plant lunchroom. These cards are enlarged copies of bingo cards selected at random and reprinted on a 10-in. by 12-in. piece of ⅛-in. masonite.

Each day a number or group of numbers is drawn from a regular rotating bingo cage and posted on a master board mounted near the crew or team cards. A duplicate master board is kept by the operator. When these numbers are posted, each group plays the game



using green tags to cover numbers "called."

Listed at the top of the master board is the name of the game in progress. This can be changed from "Straight Safety" to "Blackout" or to other various standard bingo games.

Crews suffering a disabling injury are disqualified from the game in progress at the time the injury is registered on the records. At this point a white disqualifying card is placed over the game board of the crew which has been disqualified. It remains in place exposing the name of the crew until a new game is started.

Crews suffering a fatality are disqualified for the next 90 days.

Prizes can vary. Such items as ball-point pens, safety playing cards, candy, or cigarettes can be used. Approximately 24 games can be played each year.

The advantages found in this type of incentive program are:

1. It varies slightly from the idea of "buying" safety in that it merely awards one group a prize while others anxiously compete.
2. It puts "Safe-T" in front of employees during their hours of relaxation. All eyes are on the board during lunch period and between shifts.
3. The game not only creates competition between shifts but, more important, cooperation among crew members. It eliminates fake injuries and puts the accident-prone worker at the mercy of his fellow crew members, who usually straighten him out.
4. The game has unlimited variations which may be added. For instance, when absenteeism plagues the plant, a game can be played with perfect attendance as a prerequisite for participation. Low production, poor quality, or equipment damage may be substituted as a disqualifying feature.

Submitted by Earl F. Pratt, personnel and safety director, Keokuk Electro-Metals Co., Keokuk, Iowa.

SQUEE-E-ze Bottle

We liked this idea, even though it isn't necessarily industrial in its application. It is called a "Saf-T-Bottle" and was designed to keep harmful pills out of the hands of small children.

The bottle is plastic. To open the slit across the top for dispensing the contents, a pressure of 10 pounds must be applied to the sides of the bottle neck. This spreads the slit and the contents can be removed.

Since the bottle is made of plastic, it has the additional advantage of being unbreakable.

Submitted by R. T. Whitacre, Evendale, Ohio.

89 NEW PRIZES FOR IDEAS!

Winners of NSC monthly and semi-annual "best ideas" contests now can select one of 89 new prizes, including a personalized copy of the *Accident Prevention Manual*, from a list of individualized home, recreation, and sport items. Value of the awards remains the same as in previous competitions. For the best idea printed monthly, we will present $15 worth of merchandise. Prizes totaling $25 will go every six months to the best of the monthly winners.

Monthly awards now available include clothing accessories, tool attachments, and carving sets, plus electric wall clocks, picnic utensils, pup tents and fishing reels. Six-month prizes range from electric shavers and skillets, attaché cases, and automatic coffee makers to golf bags, plastic wading pools, and battery chargers.

Send a brief description with a photo or drawing to "Ideas That Worked," National Safety Council, 425 N. Michigan Ave., Chicago 11. Any program or safety promotion idea, gadget, or homegrown invention that prevents accidents in your plant is eligible.

The Useful Dry Mop

Even in this mechanical age, plant maintenance needs a lot of hand sweeping. And the dry mop is one of the janitor's best friends

FLOOR scrubbing and polishing machines, vacuum cleaners, and power sweepers have speeded cleaning operations and raised standards of industrial housekeeping, but manual work still is needed. One of the most useful and least expensive hand tools is the dry cotton mop. It comes in several widths and with a little practice a janitor can sweep a large floor quickly and thoroughly.

Mop sweeping is suitable for all types of floors, except where sticky spillage or other floor conditions make sweeping impossible. Dry mops are for fine cleaning rather than removal of heavy accumulations of dirt.

Mop sweeping removes fine dust, leaving a smooth polished surface, in an action somewhat like using pumice, rotten stone or whiting for polishing metals or furniture. Such a surface is easier to keep clean.

This type of sweeping also keeps dust out of the air. A properly treated mop glides over the floor, holding dust in its strands until shaken out, instead of stirring up dust as happens with broom sweeping. Mop sweeping keeps abrasive grit off floors, reducing wear on traffic lanes.

How to Treat a Mop

To get best results, these recommendations are offered by G. H. Tennant Company of Minneapolis.

Oiling. For most applications a cotton mop should be treated lightly with oil prepared especially for this purpose. Over-treatment should be avoided. Too much oil makes a mop heavy, hard to push, and sticky, so frequent washing is necessary. The film of oil left on the floor may be harmful.

The mop should not be used for five or six hours after oiling to give it a chance to absorb oil more uniformly.

Keep treated mops in deep metal pans to avoid fire hazards and to avoid staining areas that may absorb oil.

If the mop leaves oil on hands or streaks on floor, the mop is too heavily treated. If dust rises when the mop is shaken, it does not have enough oil.

Daily Care. Shake out the mop well, brush out surface dirt with a scrubbing brush, then re-oil the mop before putting it away for the next day's use. Change mop refills when they become dirty.

Treated mops should not be used on oily floors, waxed floors, asphalt or rubber tile, terrazzo, or linoleum. There are certain industries where treated mops are undesirable.

How to clean. Mop heads are removable and may be sent to a laundry or cleaned by hand.

A mop can be cleaned by soaking overnight in an alkaline cleaning solution or in a sink or tub full of soapy water. Tri-sodium phosphate or half a teacup of ammonia added to each gallon of water will make cleaning easier. Wash the mop thoroughly by churning up and down. The final step is to rinse in plenty of hot water. Then squeeze out the water and dry the mop in the boiler room or other convenient place. The mop can be treated and used before it is entirely dry.

How to Sweep

First, place the dustpan, floor brush, or other device at one end of the room away from walls and the path of people who may be in the area.

Next, sweep outer edges of the area with a floor brush—cleaning corners, under benches and machinery, or wherever the mop can't reach. Sweep dirt where it will be picked up later by the mop.

Then, place the mop on the floor with strands pointing forward. In this position, individual cotton fibers work most efficiently in picking up dirt and improving the cleaning, polishing effect. This technique allows faster work with less effort.

Push the mop along the floor to the other end of the room, giving the handle a good downward pressure. Do not remove the mop from the floor. Continue pushing the mop until ready to shake it out.

Frequent sweeping protects floors and improves their appearance and ability to resist dirt penetration and staining. Sweeping should be done often enough to keep the floor free from dust, oil, and other soilage. This usually

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A NATIONAL SAFETY COUNCIL
TECHNICAL SERVICE

DATA SHEET D-465

COLD-ROOM TESTING OF GASOLINE AND DIESEL ENGINES

Published by National Safety Council
425 North Michigan Avenue, Chicago 11

1. Low-temperature testing and research in industry are conducted in chambers or rooms designed and built to be operated under a wide temperature range from 70 F to at least —70 F. Although foods, plastics, waxes and various solvents are tested under low-temperature conditions, this data sheet is limited to precautions applicable to cold-room facilities for testing gasoline and diesel engines and their accessories, fuels, coolants, and lubricants, as used in aircraft and in automotive and industrial power applications.

2. During many of these tests, personnel must enter the cold room to perform certain required operations and observations. Some major factors which could lead to hazards in cold-room operations are fuels, carbon monoxide, oxygen deficiency, antifreeze solutions, and refrigerants. Slippery surfaces and exposure to quick temperature changes and to subfreezing temperatures are other sources of hazard to personnel.

3. The purpose of this data sheet is to suggest cold-room design features and operating procedures which will help prevent injury, damage, and other loss.

Prevention of Fire and Explosion

4. Fuels and coolants to be used should be designated on the test record sheet, and operating personnel should be familiar with properties of the specified fuels and coolants. Fuel, lubricant, and coolant lines should be approved as having properties necessary to prevent their cracking and breaking at low-temperature operations that they will be exposed to.

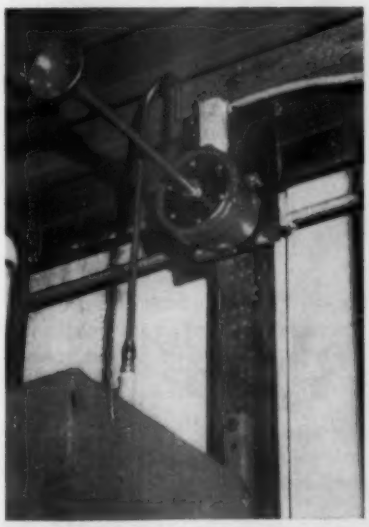

Figure 1. Alarm horn for CO_2 fire-extinguishing system. Note the explosion-proof wiring. (Courtesy Bendix Aviation Corporation)

5. Fuel should not be transferred from one container to another inside the cold room. Safety containers (five gallons maximum) should be filled outside the cold room, then brought in. These safety containers should have threaded connections for attachment to an engine fuel system located in a cold room, and should be hooked up by that means.

6. Fuel tanks should be vented to the outside atmosphere to prevent an accumulation of explosive vapors in the room. As an additional safety measure, an explosion concentration meter with an alarm can be installed. Since spillage may occur despite all precautions, provision should be made for prompt clean-up of any fuel spilled.

7. Recognized bonding and grounding procedures must be applied. Where fuel test operations are to be performed, grounded spark-resistant floors should be installed.

8. Personnel cannot tolerate too great a rise in pressure, such

Figure 2. Manual control for CO_2 system. (Courtesy Bendix Aviation Corporation)

as the maximum shock wave rise in an explosion. Therefore, where liquefied gases, such as isobutane, isopentane, and the heptanes, or fuels impregnated with petrolic ether or ethyl ether are to be used, design of the cold room should include means to relieve ambient pressures that would attend an explosion in the room. Insulated blow-out doors will relieve such pressures. Pressure-set latches on doors or spring-loaded, outward-opening doors will also provide pressure relief, as well as exit.

9. A make-up system should be installed to replace the air used by the engine and, thus, prevent too great a pressure drop in the cold cell.

10. A controlled ventilation system will prevent flammable vapors from building up to the explosive range. The most effective location for the ventilating equipment will be determined in part by the molecular weights of the gases or vapors to be encountered.

11. As a general practice to minimize the fire hazard, liquefied gases and other fuels should not be stored in cold rooms. When liquefied gases must be stored in cold rooms to pre-chill these fuels for tests, the pressure containers used should be fabricated of metals having suitable impact strength and ductility at the low temperatures to which they are to be exposed. Required fuel in the cold room should be in containers designed to withstand the internal pressure of fuel vapors built-up in the event the cold-room cooling system should fail.

12. Emergencies may develop which are beyond control of occupants of the cold room. To minimize hazards, there should be positive controls manned outside the chamber to shut down engines, shut off fuel, and disconnect electrical circuits to the engine and circulatory fans. Lights should be left on.

13. Where electric-impulse fuel pumps must be used in a cold room, they should have finely-balanced pressure switches to cut them out of operation if a line bursts or a carburetor float valve fails. Gasoline engine carburetors should be fitted with backfire flame arresters on the air intakes.

14. Unless required by special tests, alcohol and other flammable coolants should not be used in the cooling system of an internal combustion engine. If a flammable coolant is used in a cooling system, the overflow pipe from the radiator should be connected to an effective condenser or vented outside.

15. Light distillates, such as fuel oil and kerosene, should not be used as coolants in an engine to be run inside the cold room.

16. A safe coolant would be ethylene glycol or a solution made up: 45.4 per cent by volume ethylene glycol; 22.3 per cent by volume methoxyethanol; 32.3 per cent by volume water; 1.5 per cent *by weight* of borax. This solution provides protection to —90.5 F.

Fire Control, Emergency Alarms

17. An effective fire-extinguishing system should be provided for cold rooms. Carbon dioxide (CO_2) or dry chemical are effective extinguishing agents. A fixed system should include a predischarge warning alarm which will provide enough time for operating personnel to leave the chamber after the warning signal and before the extinguishing agent is discharged. The cold-room area, inside and out, should be appropriately placarded in conspicuous locations with directions and cautions regarding the extinguishing system. Personnel should be thoroughly trained in the function of this system.

18. Any portable first-aid fire extinguishing equipment used should be suitable for cold-temperature operations — dry chemical pressurized with nitrogen, or carbon dioxide *winterized* with nitrogen.

19. Since a rise in pressure will occur in the chamber when CO_2 is discharged, a manually-operated system may be preferred for use when personnel are inside the cold room. Because personnel would have direct control over a manually-operated system, the asphyxiation hazard would be reduced. Means should be provided for switch-over to automatic discharge that will operate in the event of fire when the room is unoccupied or unattended.

20. A fire blanket should be available for immediate use, and an oxygen mask, tank, and related equipment should be on hand for rescue operations.

Refrigerants

21. Numerous refrigerants are used to lower cold-room temperatures. These refrigerants include the freons, anhydrous ammonia,

carbonic acid, sulfur dioxide, Pictet's liquid (a mixture of liquid carbon dioxide and sulfur dioxide), sulfuric ether, dry ice-methanol, liquid CO_2-methanol, dry ice-Stoddard solvent, liquid CO_2-Stoddard solvent, and direct dry ice, or liquid carbon dioxide (CO_2).

22. When a refrigerant is being selected, its toxicity and flammability, as well as physical properties which would enable it to do the cooling job required, should be considered.

23. The name and properties of the refrigerant used should be posted outside the cold room at its entrance. Such posting should include the antidote, the correct method of resuscitation, and the designated respiratory protective equipment. Required emergency equipment should be immediately available.

24. Important is the establishment of and adherence to regular maintenance schedules to prevent leaks in the system and unwanted shutdowns.

Carbon Monoxide

25. To prevent escape of carbon monoxide into the area, a leak-free engine exhaust system must be used. If more than one engine is connected to a common exhaust line, check valves should be used to prevent exhaust from an operating engine from flowing into an idle engine. Traps may also be used in exhaust lines to prevent vapors from returning.

26. Exhaust system components should be checked for first-class condition before they are installed. When installation is complete and the engine started for the first time, the exhaust manifold, manifold riser, and muffler connections should be carefully checked and defects corrected before the test is continued. Periodic inspection and maintenance should be conducted during the course of the test.

27. The engine crank case ventilator tube should be exhausted to the outside.

28. Whenever concentrations of carbon monoxide may occur, approved carbon monoxide sampling and alarm systems should be provided in all cold rooms where employees must work. It should be borne in mind that equipment designed for detection of carbon monoxide does not give warning of similar sources of hazard, for example, fumes from burn-off of paints or other coatings, which may create a toxic atmosphere.

Electrical Equipment

29. Cold-room lighting systems, electric fan motors, and other electrical equipment should comply with requirements of the *National Electrical Code** for hazardous locations.

30. Static electricity should be recognized as a possible source of hazard. To prevent the build-up of static charges on persons, shoes with conductive but spark-resistant soles or heels should be worn and a spark-resistant conductive floor installed. Ferrous metal contacts often cause friction sparks.

Selection of Operating Personnel

31. Personnel to be assigned to cold-room operations must meet certain physical requirements. Only men who have not had chronic pulmonary disease or frostbite and who have no evidence of significant cardiovascular disease, peripheral vascular disease, hypothyroidism, arthritis, or diabetes should be selected.

32. The preplacement physical examination should include a urinalysis, a reliable hemoglobin determination, a chest x-ray, and an electrocardiogram. Cold-room personnel should be re-examined every six months, or more often if exposure warrants. Some operators believe an annual physical examination is sufficient.

33. Alcoholic beverages should not be used by persons within 24 hours preceding the time of entry into a low-temperature cold room.

34. Anyone who has had a coronary thrombosis or occlusive vascular phenomenon in the extremities should not be allowed to enter the cold room under any circumstances.

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*"National Fire Codes," Vol. V, *Electrical*, National Fire Protection Association, Boston 10, Mass., 1957.

Figure 3. Complete personal protection for work in cold room—parka with hood, face mask, gloves, boots, and body garments. (Courtesy AiResearch Manufacturing Company)

Clothing

35. Clothing should be a type worn by personnel to keep warm in aircraft at extremely high altitudes, or comparable to clothing worn in the arctic regions. Some companies have garments made to their specifications, and other firms procure surplus air force clothing, including electrically-heated suits.

36. Persons entering cold rooms should be guided by these precautions with regard to clothing:

a. Keep clothing clean and dry.
b. Before entering cold room, dress in appropriate clothing for temperatures to be encountered.
c. Do not wear shoes with sponge rubber soles in cold rooms. This type of sole collects moisture, and a person wearing shoes so equipped can be frozen fast to the floor.
d. Avoid perspiring before you enter the cold room. If you are hot, cool off before dressing.
e. Enter the cold room, as soon as you have dressed. *Time yourself so you need not rush.*
f. Always wear gloves in temperatures below 20 F. Touching very cold metal with bare hands is dangerous. Gloves should be worn above 20 F, as conditions warrant.
g. When you come out of the cold room, brush off excess frost, and loosen your clothing in the lock. Do not remove it.
h. Remove your clothing in the dressing room. Hang garments so air can circulate through them and drive out moisture and fuel vapors.

Frostbite

37. To avoid frostbite, personnel should follow these safe practices:

a. Stay out of air blasts, if possible. Quiet cold air is not as dangerous as moving cold air.
b. Keep a close check on your nose, cheeks, chin, arms, and legs for numbness. Contract the facial muscles to detect stiffness in the skin. Each of a group of operators should watch the others and give a warning when white patches appear on anyone's face. (The monitor in the control room can be of help in observing for symptoms of frostbite.) Should stiffness in the skin or white patches occur, *leave the cold room at once.*
c. When wearing a parka, keep the hood pulled well down for protection of the face.
d. In temperatures of zero F and below, cover the lower half of the face with a fresh surgical mask.
e. Do not rub frost-bitten areas. Keep them warm with wool or fur, and get immediate medical treatment.

Low-Temperature Chamber

38. These precautions must be observed by persons before entry and during stay in a low-temperature chamber:

a. If you are perspiring, wearing damp clothing, or suffering from a cold, do not enter the low-temperature chamber.
b. Check in and clear through the control room. If observati n ports are obscured by frost, remain in constant telephonic or other communication with the control room.
c. Remove any icicle, and use extreme care in walking on slippery surfaces (hold on to a hand support, if possible). Frost and ice can be treacherous.
d. When exposed to low temperatures, avoid moving rapidly and breathe through your nose even though you are wearing a protective mask.
e. For fine work, arctic gloves may be removed for a short time, but inner gloves must be kept on the hands.

General Precautions

39. No one should be permitted to work alone in the cold room, unless an observer stationed at the observation window can see the person in the cold room at all times. Observation windows and ports should be located so they always permit a clear, unobstructed view of persons in the cold room. Dead-air space or heating equipment can serve to keep such viewing installations clear of frost.

40. A log should be kept, recording the names of persons working in the cold room, the time they enter, and the time they leave.

41. Operators must be thoroughly familiar with the cold room and must know the location of exits, fire fighting equipment, and all other facilities. Regular, good supervision should be maintained to assure adherence to established work methods and control procedures.

42. Exits should be designed, built, and maintained so cold-room occupants cannot be trapped. Outward-opening, overlap-type doors with panic-latches released from the inside should be provided.

43. Heating tape (resistor wire) around the entire surface of the door casing is recommended to prevent the door from freezing during prolonged use of the cold room at low temperatures.

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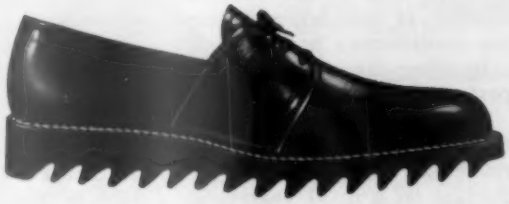
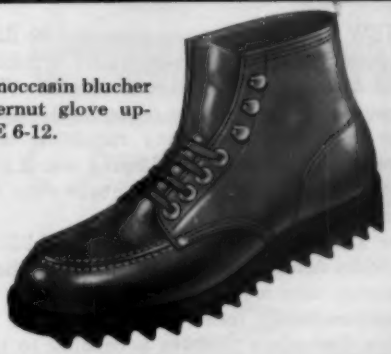
Figure 4. The emergency alarm actuating rope on the wall is within easy reach of operating personnel, even from a near-prone position. (Courtesy Bendix Aviation Corporation)

Thom McAn's new RIPPLE* Soles now on 3 outstanding Safety Shoes!



S-1386 Black desert saddle oxford. C 7-12, D-E 6-12.

S-4186 6″ moccasin blucher with butternut glove uppers. D-EE 6-12.



S-4386 Tan desert saddle oxford piped in black. B 8-12, C 7-12, D 6-13½, E 6-12.

BY POPULAR DEMAND, Thom McAn now offers you *three* best-selling Safety Shoe styles with the built-in comfort and protection of the amazing new RIPPLE Sole! Look at all these features:

- Nonskid traction prevents slips or skids
- Gliding action lengthens stride, saves steps
- Absorbs pavement shock to lessen fatigue
- Resists oil and water
- Leather-lined steel toe box

The new RIPPLE Sole, combined with all the regular Safety Shoe features, makes these three new Thom McAn shoes the safest, most comfortable and best-looking Safety Shoes you can buy!

Terrific New Service. Thom McAn makes 40 different kinds of safety shoes for men and women in every branch of industry. But, if we don't have the shoe you want—and construction is possible—we will design a safety shoe to your specifications. For details on this, or any other Thom McAn service, check and mail the coupon below.

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SAFETY SHOES

A Division of Melville Shoe Corporation

Thom McAn Safety Shoe Division, 25 W. 43 St., N. Y. 36

Gentlemen: Please send me the following at once:
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- ☐ Address of nearest Thom McAn Safety Shoe Store
- ☐ Details of Thom McAn's Special In-Plant Fitting Plan
- ☐ Fully illustrated list of Thom McAn Safety Shoes
- ☐ Promotion material, safety posters, etc.
- ☐ Details of Thom McAn's "Special Design" Safety Shoe Service

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C

Circle Item No. 8—Reader Service Card

SAFETY LEADERS OF 1957

Winners of first-place plaques in National Safety Council's Sectional Contests

A NEW LOW frequency rate of 5.82 disabling injuries per million man-hours worked was reported for 1957 by 4,341 entrants in 17 industrial groups in which contests were held.

The combined frequency rates for winners of National Safety Council plaques was 1.05—approximately 18 per cent of the average rate for all contestants.

For 1956 the frequency rate for 4,235 entrants was 5.95. Among winners of plaques the combined frequency rate was .85.

The companies listed below are those which will receive first-place plaques according to the rules of the contest in their own industry.

In the Barge and Towing Vessel, Chemical, Fertilizer, Hospital, Petroleum, Printing and Publishing, Textile, Commercial Vehicle, Glass and Ceramics, and Transit contests, first-place plaques are awarded only to the unit operating the largest number of man-hours in cases where several of the contributors have established perfect records.

In other contests, all companies or plants with perfect records receive duplicate first-place plaques.

In addition to the contests listed here, competitions are also conducted by the Metals Section and the Meat Packing, Tanning and Leather Products Section on a fiscal year basis, July 1 to June 30.

Complete lists of all winners, plus second and third place winners and companies receiving certificates of merit for perfect records, appear in the contest bulletins which are being sent to all participating companies and plants.

Each bulletin also contains a brief analysis of experience in the industry and a coded list permitting each non-winning company to identify its own record and compare it with others.

THE HOSPITAL CONTEST

The Hospital Section Safety Contest was sponsored jointly by the American Hospital Association and the National Safety Council. In addition to plaques for first, second, and third place, a grand award was won by Tripler U. S. Army Hospital, Honolulu.

First place plaques went to:

Group 1—Central Oregon District Hospital, Redmond, Ore.

Group 2—The T. J. Samson Community Hospital, Glasgow, Ky.

Group 3—Brookside Hospital, San Pablo, Calif.

Group 4—St. Alexius Hospital, Bismarck, N. D.

Group 5—U. S. Public Health Service Hospital, San Francisco.

Group 6—Gorgas Hospital, Balboa Heights, C. Z.

Group 7—The Brooklyn Hospital, Brooklyn, N. Y.

Group 8—Veterans Administration Hospital, Northport, L. I., N. Y.

AERONAUTICAL INDUSTRIES

COMPLETE AIRCRAFT MFG.

Convair—A Division of General Dynamics Corp., San Diego Div.

AIRCRAFT PARTS MFG.

Group A—National Advisory Committee for Aeronautics, Lewis Flight Propulsion Laboratory.

Group B—Northrop Aircraft, Inc., Northrop Div., Muroc Facility. Northrop Aircraft, Inc., Northrop Div., L.A.X. Facility.

BARGE AND TOWING VESSELS

Group A—United States Steel Corp., River Transportation.

Group B—Armco Steel Corp., River Transportation.

CHEMICAL

DIVISION I

Group A—E. I. du Pont de Nemours & Co., Chattanooga Plant.

Group B—E. I. du Pont de Nemours & Co., Toledo Finishes Plant.

Group C—E. I. du Pont de Nemours & Co., Rayon Research Laboratory.

DIVISION II

Group A—A-S-R Products Corp., Kingsbury Div., LaPorte, Ind.

Group B—The Chemstrand Corp., Research and Development Div., Decatur, Ala.

Group C—The Procter & Gamble Mfg. Co., Sacramento, Calif.

DIVISION III

Group A—Baldwin-Hill Co., Trenton, N. J.

Group B—Commercial Alcohols Ltd., Gatineau, Que.

Group C—Texon, Inc., Russell, Mass.

COMMERCIAL VEHICLE

COMMON AND CONTRACT CARRIERS DIV.

Group A—The Mason & Dixon Lines, Inc., Kingsport, Tenn.

Group B—F. J. Boutell Service Co., Flint, Mich.

FERTILIZER

DIVISION I

Group A—Canadian Industries Ltd., Chatham, Ont., Works.

Group B—Federal Chemical Co., Louisville, Ky., Plant.

Group C—Canadian Industries Ltd., Halifax, N.S., Plant.

DIVISION II

Group A—Swift & Co., Plant Food Div., Atlanta, Ga.

Group B—Canadian Industries Ltd., Beloeil Works, Agricultural Chemicals Div.

DIVISION III

Group A—Davison Chemical Co., Div. W. R. Grace & Co., Joplin, Mo.

Group B— Swift & Co., Agricultural Chemical Div., South Norfolk, Va.

DIVISION IV

Coronet Phosphate Co., Div. Smith-Douglass.

FOOD

DIVISION I

Group A—Moorman Mfg. Co., Quincy, Ill.

Group B—Ralston-Purina Co., Davenport. Ia., Branch.

Ralston-Purina Co., Nashville, Tenn., Branch.

Ralston-Purina Co., Charlotte, N. C., Branch.

Pillsbury Mills, Inc., Minneapolis, Minn.

Pillsbury Mills, Inc., Atchison, Kans.

General Mills, Inc., Vallejo, Calif., Flour and Feed Mill.

The Quaker Oats Co., Memphis, Tenn.

Group C—Pillsbury Mills, Inc., Astoria, Ore.

Pillsbury Mills, Inc., Nashville, Tenn.

Pillsbury Mills, Inc., Lima, Ohio.

Pillsbury Mills, Inc., Los Angeles Refrigerated Foods Plant.

General Mills, Inc., Spokane, Wash., Flour and Feed Mill.

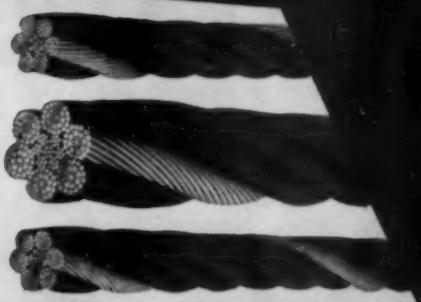
—To page 118

You're buying a service... when you buy Macwhyte Wire Rope!

WIRE ROPE

You can get the **right** rope no matter what your equipment need . . . when you buy from our thousand-and-one types, sizes, and grades of wire rope.

Monarch Whyte Strand wire rope is available PREformed and Internally Lubricated, in Lang Lay, Regular Lay, and with Independent Wire Rope Core or Fiber Core. Ropes are made of Bright Steel, Galvanized Steel, Stainless Steel, Monel Metal and Plastic Coated. They are supplied properly lubricated and fabricated to serve well under the severest service conditions. Ask for Monarch Whyte Strand Bulletin 5425.



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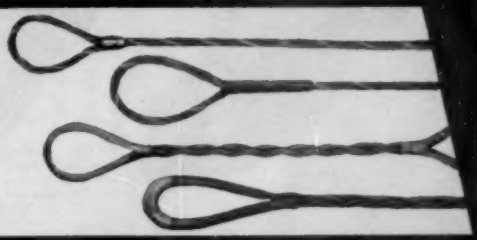
Hundreds of sizes and types of Macwhyte wire rope slings are designed with the lightness, flexibility, and handling ease you need for efficient, low-cost material handling. Three body styles are made: ATLAS Round-Braided, DREW Flat-Braided, MONARCH Single-Part. Ask for your free copy of Sling Data Bulletin 5308-R.



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Safe-Lock wire rope assemblies are made in a wide range of sizes for machine parts, controls, and operating devices. They are prefabricated to the exact size and length you need—ready-to-use for safe, easy, quick, low-cost installation. Ask for Bulletin 57126.

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107

Have you seen our film on wire rope, "Life-Line"? It's available on a loan basis to groups. Ask for Bulletin.

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Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel, Plastic Coated and Nylon Coated Wire Rope, and Wire Rope Assemblies. Special catalogs available.

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H533...Black grain laceless oxford; Neoprene Air Cushion Saf-Tred sole and heel.

H946...New tan glove Chukka NOK-A-BOUT; Resist-Oil Cellular Grit sole and heel.

H535...Fawn sueded leather NOK-A-BOUT; Resist-Oil Cellular Grit sole and heel.

There's nothing else quite like HY-TEST's complete line of "casuals" in safety shoes today. All these fine styles feature light as a feather construction and easy-going comfort *plus* safe, sure protection of the famous Anchor Flange Steel Box Toe and other exclusive Standards of Quality. They're the kind of shoes your workers will wear on-and-off the job. Write or wire for complete details today.

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H823 ... Women's smoked sides NOK-A-BOUT pump; Neoprene Air Cushion Grit sole and heel.

H825 ... Women's black sueded leather loafer; Neoprene Air Cushion Grit sole and heel; cushion arch and heel pad.

H813 ... Similar to above in brown sides; leather sole, rubber heel.

25 YEARS OF PROGRESS
WORLD'S LARGEST

HY-TEST

SAFEty SHOES FOR EVERY NEED

Circle Item No. 10—Reader Service Card

ED SLAVIK, servicing safety engineer for Employers Mutuals of Wausau, Wisconsin, points to one of the unusual cowhide brands tacked to a huge display board at the Fred Rueping Leather Company. At the left are Rueping foremen Rueben Ruch and Norman Breitzka.

By C. F. SCHLUETER

SAF-T BRANDED HIDES

The tanning industry is shown the way to employee good will, lower compensation costs by this progressive Wisconsin firm

LAZY Bar B, Circle T, and Rocking Y are typical of hundreds of cowhide brands tacked to a large display board at the Fred Rueping Leather Company, Fond du Lac, Wis. Recently, these brands were joined by another—the National Safety Council's Green Circle Cross brand stamped to the Council's Award of Merit plaque. The company received this plaque for placing first in its division, safetywise, during the past year.

The Rueping brand of safety is paying handsome returns. Currently, the tannery can boast a 57 per cent credit on its compensation insurance rates. This means the firm is paying less than half as much premium as its industry average!

In setting this mark the organization has totaled more than a million and a half consecutive man-hours without a lost-time injury in almost 600 consecutive work days. These results are quite a distinction for a concern daily processing 110,000 sq. ft. of upperside shoe leather, roughly the equivalent of hides stripped from a string of cattle stretching five miles.

The record still continues. If past trends are any indication, the leather firm will achieve even higher savings. Cost of compensation insurance has declined from 92 cents per $100 of payroll in 1951 to 58 cents in 1956.

Painstaking analysis, experimentation, trial and error, and a complete $5-million renovation project involving all phases of operations are responsible for such safety success.

The project first gained momentum 14 years ago, when former Circuit Court Judge Clayton F. Van Pelt became the company's president. He proceeded to give the plant a safety face-lifting so complete that the present operation bears little physical resemblance to the old. Many industry officials consider it one of the safest tanneries in the country—a great transition from a business which had been paying almost double its industry-average workmen's compensation rates when Judge Van Pelt first rolled up his sleeves.

Chemicals and tanning compounds are literally untouched by human hands from the moment the materials enter the plant. Manual handling of heavy materials has been reduced to the bare minimum by a vast network of conveyors that transport hides, fleshings, and trimmings.

Years ago, tanning chemicals exacted a high toll of burn and

C. F. SCHLUETER is Accident Prevention Manager of Employers Mutuals Liability Insurance Company of Wausau, Wis.

LIFT TRUCKS equipped with specially designed dump bodies are a real time saver at Rueping's. George Kurtz, a beam and soak employee, is pictured as he checks the position of the device, preparatory to dumping the fleshed hides into a paddle wheel type vat. Formerly, the "wet" departments presented the greatest hazards.

AT RIGHT, Rueping president C. F. Van Pelt accepts National Safety Council Tanning and Leather Section contest award. Presenting the plaque is Charles Elsby, Milwaukee supervising engineer for Employers Mutuals of Wausau, and general chairman of the Council's Meat Packing, Tanning and Leather Products Section. At left is Ed Slavik, the insurance firm's Fond du Lac safety engineer.

back injuries, when transported via push carts in crude, open containers. Dangerous solutions, such as sulfuric acid, now arrive in tank cars just outside the plant and are pumped directly to the fourth floor into huge, enclosed storage tanks. Later, these solutions are dispensed by the flick of a valve automatically . . . and safely . . . to mixing tanks and drums below.

Safe handling also applies to tons of rock salt delivered periodically in boxcars, then elevated by conveyor to a storage hopper positioned above brine-making equipment.

Where wheelbarrows laden with heavy, saturated hides once bounced down narrow, dimly-lighted aisles, now electric lift trucks carrying heavy loads roll down roomy, clearly-marked aisles lighted by an extensive fluorescent system. Yet, new equipment and stepped-up mechanical handling have not been the sole answers.

Ed Slavik, servicing safety engineer for Employers Mutuals Liability Insurance Company of Wausau, Wis., said: "The Rueping people have combined modern equipment and common safety methods to produce uncommonly fine safety results."

The firm used to operate on porous wooden floors which readily became impregnated with slick waste products. Injuries from slips and falls reached nightmare proportions. Not so, now! Brick and tile long since have

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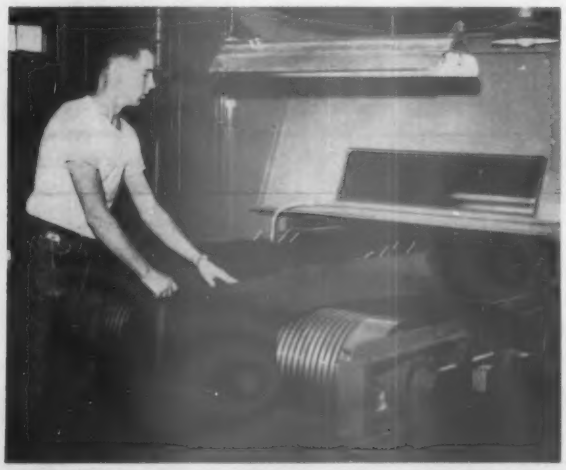


CONVEYORS of many types speed production at the Rueping finishing department. Job fatigue is lessened, and this, too, is an important factor in maintaining a top-notch safety record. Walter Kutz is the workman pictured here.

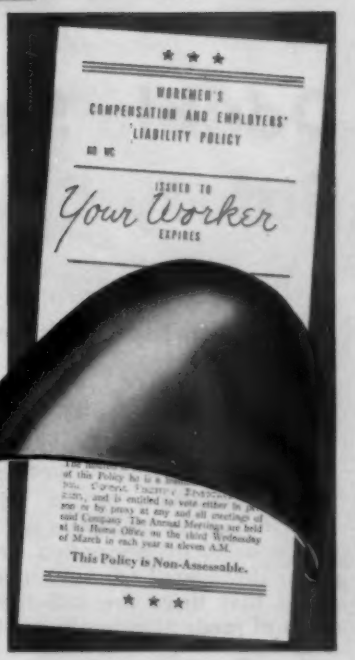
AUTOMATIC transporters and a fleet of lift trucks have eliminated a great deal of physical effort at Rueping's—thus removing the cause of many falls and back strains. Glazed brick floors are kept spotless, and the wide, unobstructed aisles are plainly marked as a safety measure.

ONE WORKER DOWN AND ...219,999 TO GO?

Reliable insurance sources state that according to latest available figures 220,000 industrial foot injuries occurred in a single year.

Here is positive proof that *regular* shoes are not only costing industry millions of dollars in lost-time injuries each year, but untold human suffering to their workers as well.

Ridiculous . . . when you consider that safety shoes purchased through industry cost less than ordinary shoes and would have prevented most of these unfortunate accidents.



WINGUARD...
The latest development in steel toe protection.

Safety Box Toe Company

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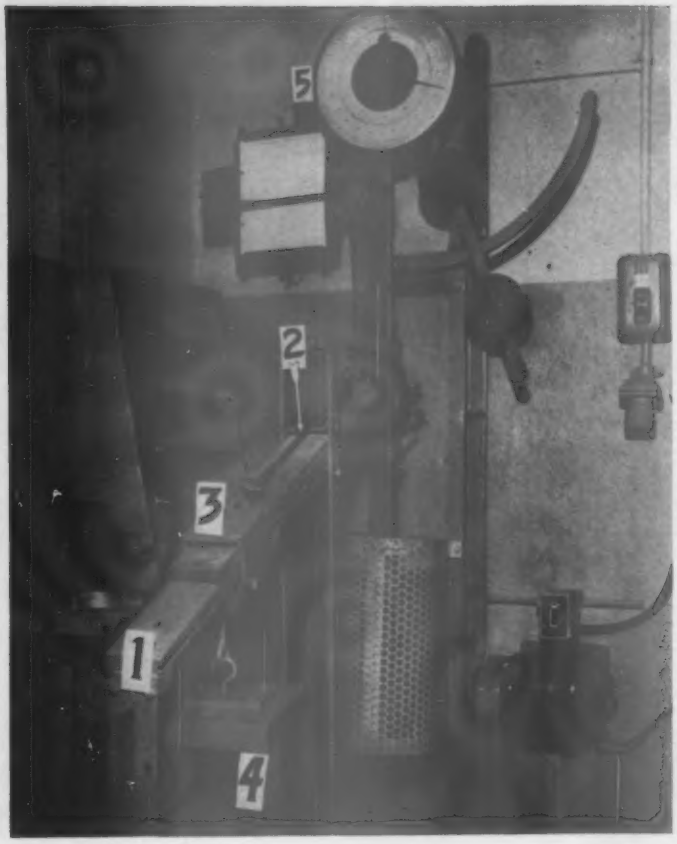


TESTING SOLES and heels for slip-resistance. Slippage tests were made up and down on this 25-degree ramp (A). The surface here (B) is wet concrete. Tests are also made with dry concrete, dry hardwood, oiled hardwood, and other flooring materials. Shoes with various types of soles (C) are tested.

LEFT: Testing apparatus: (1) 20-degree ramp; (2) Test terrain; (3) Test specimen holder. (4) 25-lb. weight; (5) Direct-reading dial showing pounds pull.

Double Safety with Safety Shoes

Steel caps protect toes against blows and anti-slip soles keep men on their feet

By N. C. WHITSETT

A BIG reduction in toe injuries in most industries is due to the accident prevention program. However, I am very much afraid that there are still thousands of production workers who are not enjoying the toe protection they have a right to expect. Something is lacking somewhere.

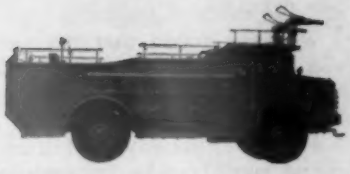
The safety shoe industry has developed shoes that can be worn with comfort. But appearance needn't be sacrificed for comfort. Many safety shoes are made of dress leathers. You can hardly tell them from dress shoes until they save toes from injury. One of the latest protective features in safety shoes is the instep guard.

Most safety shoes on the market are made with sweat-resistant insoles. For water-repellency, there are specially-tanned leathers. Cloth linings used often are treated to prevent mildew, rot, and bacteria. Combine these features with those of anti-slip soles, and we believe you'll have safety shoes built for your job.

Something *can* be done about slips, falls, toe injuries, and the like. Yet, it appears some safety engineers are too busy on the defensive to be aggressive. They say, "We don't need safety shoes," and, "My company doesn't make foot protection compulsory." It is our hope they will bypass these cliches and develop a *good* foot protection program.

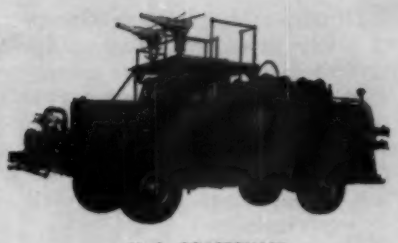
A good program is one that brings about a consciousness at the management level, as well as the worker level . . . a consciousness of cost of accidents and how this factor reflects itself in the price of the end product . . . in the greater success of the company. —*To page 50*

N. C. WHITSETT is General Manager, Hy-Test Safety Shoes Division, International Shoe Company, St. Louis, Mo. This article has been condensed from an address presented to the Meat Packing, Tanning and Leather Products Section at the 45th National Safety Congress, October 21-25, 1957.



WASHINGTON, D. C., NATIONAL AIRPORT

FIRE JEEP — CRUCIBLE STEEL CO. OF AMERICA



U. S. COASTGUARD

ROCKWOOD EQUIPMENT RIDES ON LEADING FIRE TRUCKS

AIRCRAFT CRASH RESCUE TRUCK
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U. S. AIR FORCE TYPE 0-11-A

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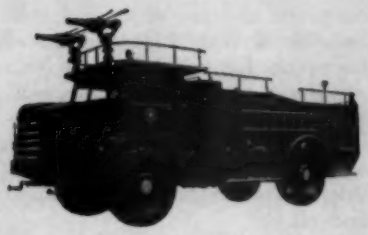

GLENN L. MARTIN AIRPORT

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Fire trucks get the benefit of famous Rockwood nozzles and proportioning systems producing WaterFOG, FogFOAM, FOAM and WET — each designed to conquer different types of fires. By means of Turret Nozzles, these trucks discharge large volumes of FogFOAM, FOAM or WaterFOG. By means of Ground Sweep Nozzles, they fight flowing gasoline fires and protect firefighters and trucks at the same time. By means of Hand Lines, they control fires in hard-to-get-at areas.

If you want precision fire fighting products — by all means send for Rockwood's free booklet. Just fill in and mail the coupon at the right now. Rockwood products have been tested and listed by Underwriters' Laboratories, Inc. Distributors in all principal industrial areas.

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Circle Item No. 12—Reader Service Card

Through the years, producers of safety shoes have tried to design shoes with consumer acceptance . . . with outstanding protective and comfort features and with leathers and soles selected for the needs of the man on the job. These shoes are the result of experience.

Early Synthetics

About the time the International Shoe Company entered the safety shoe business, DuPont developed the first synthetic rubber and marketed it under the name "neoprene." This product is more resistant than natural rubber to sunlight, ozone, oxidation, and heat. Recognizing this, the International Shoe Company manufactured the first neoprene soles for shoes. This was in 1937, when neoprene was selling for three times the price of natural rubber.

The anti-slip sole we produced then, we still are manufacturing. The neoprene we first received from DuPont in 1937 resembled Grandma's taffy after it was thoroughly processed by pulling. Today neoprene comes to us in shredded form.

Not too long after 1937, several sole manufacturers began using neoprene in place of natural rubber. World War II stopped use of neoprene for soles because this synthetic was needed for self-sealing fuel cells for aircraft, carburetor diaphragms, and various other applications requiring flexible rubber resistant to gasoline and oil.

The petroleum industry was researching synthetic rubber about the time of neoprene's introduction. During the war and in the early postwar period all manufacturers of synthetic rubber improved the product to a point where it was better than natural rubber for most uses.

Buna-N synthetic rubber is marketed by four major rubber companies: B. F. Goodrich (Hycar); Goodyear Tire & Rubber (Chemigum); U. S. Rubber (Paracril); and Firestone Tire & Rubber (ButaPrene). Obviously, the two synthetics, neoprene and Buna-N, have a lot in common.

DuPont, as well as other synthetic rubber manufacturers, now produces various types of neoprene for many applications. One is neoprene Type S. This neoprene is more resistant to oils than another neoprene, Type GN. For that matter, there are oils which are neoprene solvents of the GN type, such as diesel, peanut, and castor oils. These oils, on the other hand, will not break down neoprene Type S.

The Bearfoot Sole Company uses neoprene Type S in making soles for shoes. We understand the neoprene is calendered in its natural state and is colored for consumer acceptance. The calendering process produces a crepe sole which is quite anti-slip. Strips of this calendered neoprene are laminated to any desired thickness.

Buna-N type synthetic rubber, generally speaking, is more oil-resistant than some types of neoprene. Therefore, the International Shoe Company rubber plant began experimenting with the Buna-N type for soles. Now don't misunderstand me. We are still big users of neoprene.

We have found that the anti-slip characteristics of synthetic soles depend on processing and impregnation.

For a long time it was felt neoprene could not be impregnated with cork, but neoprene cork soles now are marketed under the trade name Neo-Cork. For that matter, Neo-Cord soles made from neoprene cord are also available commercially.

Newer Materials

We developed Buna-N type synthetic rubber soles in 1954. We asked the rubber plant for a sole that looked like leather but would outwear leather. The sole proved to be slippery, so we added cotton flocking and created an anti-slip sole. Later, we impregnated Buna-N type soles with cork and found them acceptable from an anti-slip point of view.

Blown or micro-cellular soles are used as a soling material for ordinary shoes. We, as well as other sole manufacturers, began working on a cellular resist-oil type of sole. Most manufacturers use neoprene as a base product. We also buy a micro-cellular sole from Bearfoot Sole Company—the cement and stretch-on type of sole.

The International Shoe Company Rubber Plant confined further experiments to Buna-N type synthetics. About a year ago the company developed an anti-slip cellular sole impregnated with grit. This development was based on impregnation of grit in regular Buna-N synthetic type soles.

Grit, so far as we have been able to observe, makes the most efficient available anti-slip sole without resorting to heavy cleats, suction cups, and other devices. At least one other manufacturer produces soles impregnated with grit. There are other types of anti-slip soles on the market.

The accompanying table, based on slip-resistance tests made on various types of floors at International Shoe Company's laboratory at Hannibal, Mo., summarizes our experience.

SLIP-RESISTANCE CHARACTERISTICS OF SOLE MATERIALS

Stock	Dry Concrete	Wet Concrete	Oiled Concrete	Dry Hardwood	Wet Hardwood	Oiled Hardwood
Neoprene Cork	F	F	G	G	G	G
Grit	B	F	G	G	G	G
Cord	G	F	G	G	G	G
Cellular Grit	G	B	B	B	B	B

B—best; G—good; F—fair

Procedure: Control samples of neoprene cork, grit, cord, and cellular grit—2-7/16 in. by 2-7/16 by 8/16 in. Weight attached, 25 lbs. Angle of incline, 20 degrees.

Travels in the best industry circles...

NEW Iron Age Ambassador SAFETY SHOE

with BEARFOOT NITROCREPE NEOPRENE SOLE and Safe Grid Tread

Your people, from executives on down, will proudly wear this new Iron Age "Ambassador." Smart styling plus utility make it equally at home in office or plant.

The "Ambassador" has three outstanding safety guards.

(1) A grid tread Bearfoot Nitrocrepe Neoprene sole to prevent slipping.

(2) A steel toe, encased in leather to prevent foot injuries.

(3) No-lace construction; nothing to catch, break or come untied.

The glistening golden brown upper leather is No. 1 grade "Catalina"—a special tannage by Pfister and Vogel of Milwaukee. A hidden gore assures both instep comfort and ankle hugging fit.

Ask your Iron Age representative to show this distinctive new style; created and quality-crafted to help you increase your coverage.

No. 615

A 8-13 C 6-13
B 7-13 D 6-13
E 6-13

No. 617

Companion shoe in black

Iron Age

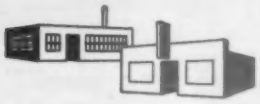
The Safety Shoe for Industrial America

Iron Age DIVISION

H. CHILDS & CO., INC. • PITTSBURGH 12, PA.

Circle Item No. 13—Reader Service Card

SMALL BUSINESS and ASSOCIATIONS



By A. M. Baltzer and John T. Curry
Small Business Program Staff, National Safety Council

1958 Associations Award

Association members of the Council will soon be invited to apply for the 1958 Award for Association Safety. The award rules and the check list entry blank remain unchanged; a maximum of 25 per cent credit is still given for reduction of frequency rate and a total of 75 per cent credit is allowed for program activities.

Since 1952, 41 associations have qualified for this award. It has stimulated their continued progress and has rewarded them with publicity that boosted public and employee relations. The award has also advanced our Small Business Program by encouraging other associations to step up their activities so they might qualify.

Consultation Service

Hardly a month goes by without some local safety organization or chapter of ASSE reporting plans to offer consultation service to small firms. So far, though, we have not heard of a case where the consultants were swamped with requests for consultation service. A recent report illustrates the more typical situation.

A safety engineer was asked by a local safety council in a typical midwestern city to "survey" a number of small firms. He was to go in cold, look over the place, and make suggestions without pressure and with no strings attached. Here's the way one day turned out.

Out of the five small plants visited, three employers were so suspicious that they declined the safety engineering service. The other two did extend the courtesy of permitting the safety engineer to go through their plant, but even then were skeptical as to his motives, even after he did his best to reassure them. Both owners did not feel they had any serious problem, and it must be admitted that the hazards observed were not too serious—usually poor housekeeping, inadequate ventilation, and failure to use guards. Although the accident experience was not definitely known, there apparently were no serious accidents to report. In brief, this safety engineer felt that his day's contribution was not exactly productive.

We're still waiting to hear about a broad consultation program that gets better results than the above.

MONTHLY bulletins on sources and causes of accidents plus pertinent safety posters liven up the program of the American Waterways Operators. (inland barge and towboat association.)

Association Convention or Safety Conference?

For many years safety conferences have included special sessions for "small businessmen" because there was always the obvious need to reach and help more companies. Attendance at such sessions was sometimes good, sometimes bad, but on closer inspection, it was found that few if any small, independent employers were present. Without any embarrassing references, we can report that in no safety conference did the small employers outnumber the safety men and supervisors from large companies and branch plants, the insurance engineers, the state inspectors and others who were "just looking for someone to say something new." In fact, in few instances did the small employers make up more than 10 per cent of the audience!

Association conventions, on the other hand, offer a more encouraging picture. The audience generally consists of top executives (whom we are always trying to reach), it usually includes a high percentage of small businessmen, and the association inspires confidence because the conventioneer is among his "own folks." Moreover, he is accustomed to hearing about things that will help him boost sales, cut operating costs, and improve employee relations or public relations. So, any reference to accident prevention quite naturally cuts across the ideas on which the conventioneer is already receptive.

MORAL: "Reach them, tell them and sell them on their home grounds!"

"Now stop worrying about the business, boss. Why, with you away there's hardly been any!"

for greater employee safety, comfort, and efficiency this summer

Be ready for the hot days ahead . . . order your MSco seasonal protective supplies now, so that your workers will avoid the dangers and discomfort of heat, insects, snakes, and poisonous plant dermatitis.

SAUNDERS' SNAKE BITE KIT

Provides *instant* first aid in the field. The Saunders' kit, *exclusive with Medical Supply Company*, has the only venom-suction pump with a guarantee . . . does not have to be lubricated in the field . . . no glass to break. Precision-made for dependable, fast, easy operation. Contains everything needed for emergency use . . . suction pump, adapters, tourniquet, lancet, bandages, antiseptic, inhalants, and instructions.

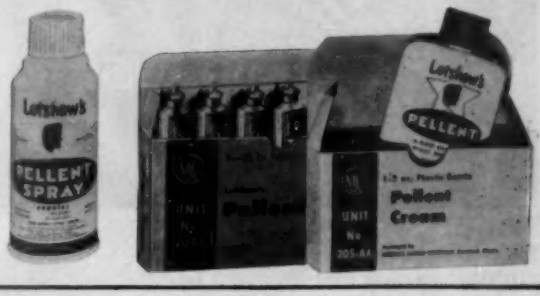
MSco POISON IVY FIRST AID

Protect your workers against poisonous plant dermatitis with these *field-proved* MSco products. No. *A-20 Zirtreme* contains *both* zirconium* for its curative properties and the antihistamine pyrilamine maleate for relief of itching. Available *both* in units and 1-pound jars. *No. A-17 Poison Ivy Ointment, both* a preventive and a cure—in new handy foil packets—six per unit. *No. 102A Poison Ivy Wash*, a long-time accepted treatment. Six vials with applicators per unit.

*Latest medically approved treatment—write for clinical data.

MSco INSECT REPELLENT

Now MSco brings you Pellent with the new ingredient Diethyl Toluamide to repel all insects. Discovered and tested by U.S.D.A. *No 227-A Pellent*, two ¾-ounce tubes per unit. Pellent, the standard repellent of our Armed Forces, for protection against all insects. *No. 205-AA Pellent Cream* in 2-ounce plastic squeeze bottle. Won't sweat off . all-day protection. *No. 204-A Pellent Ointment*, six ⅓-ounce tubes per unit. *No. 320 Liquid Form Pellent* in 5-ounce aerosol spray can for use either on body or clothing



MSco CONTROLLED-ACTION SALT TABLETS

Controlled action of MSco *impregnated* salt tablets releases energy-preserving salt in less than a minute. Salt is supplied at a steadily controlled rate as the body needs it, well below stomach's tolerance over a period of about three hours. In new AIR-LOCK all-plastic *disposable* dispenser, which locks out moist air and fumes, even while dispensing tablets. Can be mounted on walls and vehicles. Two sizes No. 350 contains 500 tablets, No. 300 contains 1000 tablets.

Don't wait for summer discomfort to slow down production . . . order these MSco safeguards now. See your MSco distributor, or write today.

Specialists in first aid

MSco®

Medical Supply Company

Rockford, Ill. • In Canada, it's Safety Supply Company

Circle Item No. 14—Reader Service Card

Safeguarding

The Food We Eat

Modern methods of cleaning and sanitizing protect it during handling and preparation

BETWEEN the time a food product is harvested and its appearance on the home or restaurant table it must be protected constantly against harmful bacteria, molds and wild yeasts. These compete with man for the available food and make vast quantities of it unfit for consumption by man or beast.

Some of these make food obviously unfit to eat. Others, like the staphylococcus organisms, are less easily detected and may cause bacterial intoxications known as food poisoning.

Pasteurizing, refrigeration, and modern methods of preserving food have done much to protect the consumer and to conserve the world's food supply. But these would have been largely ineffective without corresponding developments in cleaning methods.

Bacteria, molds, and yeasts are transmitted on contact and multiply on surfaces of processing equipment, tank trucks and cars, walls, floors, ceilings, and even in cans and jars in which foods will be packaged. Standards of cleanliness approaching the surgeon's are the goal.

Effective food plant sanitation involves two things: removal of soil and destruction of bacteria. Both are equally important.

Cleaning comes first. Soil is the breeding place for bacteria and germ killing is no substitute for thorough cleaning, although some modern products combine the two functions. Once the soil is removed, the way has been prepared for effective sanitizing.

Cleaning procedures have made great advances in the past few years. Professional sanitarians study processes, plan programs and see that they are carried out. Associations have been formed to promote high standards of sanitation. And the products for cleaning have been vastly improved.

Caustic soda, soda ash and other strong, harsh alkalis were once the only products available for heavy-duty cleaning. Now they have been replaced by more easily controlled and scientifically compounded detergents.

Inefficient hand scrubbing, scouring, and scraping have given way to mechanical methods. A familiar example is the dishwashing machine used in up-to-date restaurants and in many homes.

SHINING stainless steel equipment for kitchens and food-processing plants is easy to clean with modern detergents.

NO GREASY SPOONS. Mechanical dishwashing with a cleaner and sanitizer combining a quaternary ammonium compound and a compatible synthetic detergent insures sparkling clean, sanitary dishes, glasses and silverware.

SCHRADER ADDS MORE NEW AIR CONTROL PRODUCTS TO GIVE YOU EVEN WIDER SELECTION

NEW!

HOSE REEL FOR AIR TOOL SUSPENSION —Saves duplicate equipment and maintenance. Saves time on high speed production. Spring tension counterbalances air tools. Powerful spring automatically takes up tool.

NEW!

DOUBLE SOLENOID 4-WAY VALVES — Now double solenoid 4-way action available in full series . . . voltage-wise, port size, flow capacity. Permits longer dwell time in either position without continuous electrical energy.

NEW!

SUB-BASE SINGLE AND DOUBLE SOLENOID VALVES — Greater versatility. You don't have to disturb the piping for service. Reduces "down time" to absolute minimum. Complete series: voltages, sizes, capacities.

NEW!

PILOT OPERATED SUB-BASE 4-WAY VALVES — Sturdy cast meehanite sub-base contains all ports for piping air. Permits removal of valve mechanism for service without disturbing piping. Complete new series!

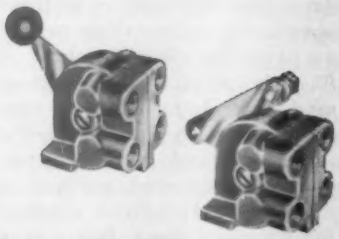
NEW!

NEW! 3-WAY SOLENOID VALVES—Simple 3-way action available in full series—voltage, port sizes, flow capacities. By shifting pilot chamber head 90°, normally open changes to normally closed, and vice versa!

NEW!

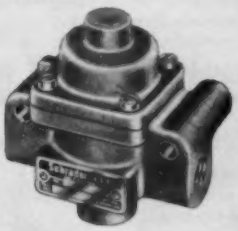
2- AND 3-WAY FOOT VALVES — With right angle ports. Give convenience and control with simplest installation. Mount directly on floor. ⅜" N.P.T. Sturdy, compact, and *versatile*. Take minimum space.

NEW!



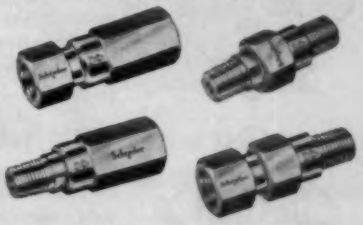
SLIDING SEAL VALVES FOR PIPED EXHAUST — Complete series! 2, 3, 4-way types. ¼" N.P.T. ports. Hand or mechanical lever. Compact, minimum working parts.

NEW!



3-WAY PILOT VALVES — Complete new line. Normally open or normally closed types. Ideal for single-acting cylinders. Simple, neat, sturdy. May easily be converted to solenoid.

NEW!



CHECK VALVES—Thread combinations now in complete series in spring-loaded check type. Pinpoint your needs. Amazingly compact, relative to large flow capacity. Capacity 35 cu. ft.

Schrader®
a division of SCOVILL

Use the full Schrader line to do your air control selecting. Your Schrader distributor can help you pinpoint what you need. For more data write:

A. SCHRADER'S SON • *Division of Scovill Manufacturing Company, Incorporated*
452 Vanderbilt Avenue, Brooklyn 38, N. Y.

QUALITY AIR PRODUCTS

Circle Item No. 15—Reader Service Card

Mechanizing of this chore makes possible high temperatures and more powerful detergents than human hands could tolerate.

Effective detergent action is the basis of sanitation. In cleaning food processing equipment, whether by hand or by mechanical means, the detergent is the most important element.

Food residues contain fats and oils which require something more effective than raw alkalis. The problem is complicated by the hardness of the water used for cleaning in many localities. Detergents for industrial use need special qualities.

Detergents must contain surface active agents for rapid wetting, penetration and emulsification of fats and oils. Alkalis are also needed for digesting protein soils. After the soils have been removed they must be kept suspended in the cleaning solution, so the detergent also needs colloidal agents to keep the soil from being redeposited.

To insure performance in a variety of water conditions, the detergent must contain lime-sequestering ingredients. If it is to be used on metals, such as tinned steel, galvanized iron, aluminum, etc., it must contain an inhibitor to give protection.

Finally, to keep the cleaning solution in the proper pH range, buffering agents are needed.

When lime scale and other residues insoluble in alkaline solutions are encountered, an acid-forming compound is required.

Scientifically compounded, balanced detergents have all these properties, or at least those needed for a particular cleaning job.

The choice of a cleaning compound depends on many factors, such as the equipment being cleaned, type and quantity of residue to be removed, method of application, and hardness of water.

Sanitizers of the chlorine type have been used for many years. More recently quaternary ammonium compounds have come into wide use. Some products clean, sanitize, and deodorize in a single operation. These compounds do not merely mask odors but kill the germs responsible for them. But effective removal of soil remains the first step in sanitizing.

Quaternary compounds are surface-active and effective in killing practically all types of bacteria. They are also effective as detergents.

Quaternary agents are not compatible with ordinary soap but can be combined effectively with synthetic detergents of the nonionic type to offer cleaning and disinfection at the same time. To enhance the cleaning and germicidal action, alkaline salts, such as complex phosphates and carbonates are added.

Cleaner-disinfectants of the "quat" type, when properly formulated, should have a pH between 9.5 and 10, which is high enough for efficient functioning. A pH higher than 10 is likely to have an irritating effect on the skin.

Hard water and organic matter in the water reduce the effectiveness of many of the quats. However a cleaner-disinfectant of this type can be formulated to give good results in the presence of considerable water hardness or organic matter.

Quat-based cleaner disinfectants are non-toxic at recommended dilutions and are said to be easy on the hands. They are non-flammable, non-volatile, and do not cause corrosion. Because they are highly soluble in water they do not clog drains or pipes.

Colby College to Hold Safety Courses

Colby College, in cooperation with nine sponsoring organizations, is offering both basic and advanced courses in Industrial Safety, June 23-27. The faculty will consist of outstanding representatives from the fields of industrial safety, insurance and medicine. A brochure outlining the courses, listing the teaching staff, and supplying other necessary information is now available.

The fee for this course is $75.00 and covers all charges, including living quarters and meals.

For further information write: William A. Macomber, director, Division of Adult Education and Extension, Colby College, Waterville, Maine.

If You Can't Beat the Heat...

There are ways to survive it

MAN HAS been described as a heat engine which functions properly within rather narrow limits of internal temperature. However, he has a complicated cooling system that makes it possible for him to exist over a wide range of environmental temperature, humidity and air movement.

Yet, beyond certain limits the regulating apparatus fails and the body cannot maintain its temperature within the range necessary for proper functioning.

In cold weather the excess capacity of the cooling mechanism is reduced by insulating the body with clothing. Also, it's simpler and less expensive to warm a work place in winter than to keep it cool in summer. That's why air conditioning is still far from universal.

The problem is especially acute in plants with hot processes. In such a plant the difficulty may be bad enough in winter—even before summer heat and humidity set in.

It isn't necessary to quote statistics to prove these summer villains cut down efficiency—both physical and mental. Personal experience will testify to that.

But lowered efficiency isn't the only problem. Health may be affected in varying degrees. Heat cramps, heat prostration, sunburn and many less dramatic ailments come along with summer.

Respiratory infections, ranging from the common cold to pneumonia, are not confined to any season. Susceptibility is increased by intense radiant heat, sharp changes in temperature, and steamy atmospheres.

Digestive disturbances are caused by the combination of hot weather, irregular hours, improper food, sudden temperature changes, and too many cold drinks. Mental factors are important, too. Anxiety and lower morale following nights too hot for sleep are disastrous to health and efficiency.

Heat rash, or prickly heat, may result from several days' exposure to temperatures above 85 F and humidity near the 100 per cent mark, especially if there's no letup in sweating at night.

Good Working Conditions

No rigid standards can be established for a good plant climate. Each industrial process is different. Individuals also differ widely. Their reactions are influenced by climate, season, type of work, health, age, sex, clothing, and psychological factors.

Study and experience have developed tentative standards. These assume humidities of not more than 50 per cent and air movement of less than 50 fpm.

For light work (offices and factory): Summer temperatures of 75 to 82 F for men and 78 to 85 F for women.

—To page 60

BELOW: 2000 F. Outside: 90 F. But the operator works at 78 degrees in an air-conditioned cab. Conditioner holds temperature at comfortable level and filters out dust and fumes.

INFORMATION FOR SAFETY DIRECTORS

about improved products and new services made possible by DU PONT CHEMICALS

Paper shipping bags and containers resist slipping when treated with Du Pont Ludox® colloidal silica. Coatings based on "Ludox" effectively increase surface friction, add "grip" to paper surfaces, provide excellent slip resistance to multi-wall paper bags and corrugated cartons. Treatment with "Ludox" is available now from many papermakers and converters.

HERE are ways you can get *extra value* for your purchasing dollar. These modern products, which bring new safety and efficiency to your operations, are made possible by Du Pont Chemicals used in their production.

The three shown here are examples of many new and improved products in which Du Pont Chemicals play a part. Ask your regular suppliers about them, or send the coupon below to get more information, including names of manufacturers from whom these products can be obtained.

Red-warning safety fusees prevent nighttime breakdowns from becoming disasters. Flares made with Du Pont Strontium Nitrate burn brilliantly in rain or fog, alert onrushing traffic of trouble ahead. Simple to use—just a scratch of the flare's cap ignites it instantly. Buy them through regular suppliers of safety equipment or write Du Pont for names of manufacturers.

Highly polished and slip-resistant floors are possible when there's Du Pont "Ludox" in the wax. Tiny, invisible spheres of "Ludox" exert a snubbing action on every footstep . . . give the foot positive traction . . . help prevent slipping. Specify waxes containing "Ludox," Du Pont's slip-retardant ingredient, when you place your next order.

DU PONT
REG. U. S. PAT. OFF.

DU PONT
Grasselli Chemicals

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Send for your free copy of the new **"INFORMATION FOR INDUSTRY"**

Specially prepared for safety directors . . . a complete packet of information on 9 products and services, including names of manufacturers of each. Yours for the asking . . . just fill out the coupon.

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room N-2533-S
Wilmington 98, Delaware

Please send me your new folder, "Information for Industry." I'm particularly interested in the items checked:
☐ anti-slip paper containers ☐ safety fusees
☐ slip-resistant floor waxes

NAME_____

FIRM_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Circle Item No. 18—Reader Service Card

← THIS?

OR THIS? →

The only thing to be said for the set-up at the left is that there is a cover on the container. At the right is a modern version of the water boy on a construction job with portable cooler and disposable paper cups.

For heavy work (summer and winter): 60 to 65 F for men and women.

Much lower temperatures may be comfortable for heavy work but are likely to chill perspiring workers during rest periods.

Relative humidity in summer should be kept under 50 per cent, if possible, especially at temperatures over 80 F. Humidities become critical at temperatures approaching that of the normal skin (94-95 F). At this point practically all body heat must be removed by perspiration. Air approaching 95 F may be endurable when it's dry. When saturated, it may cause heat prostration.

When exposure to heat beyond certain limits is unavoidable, medical authorities recommend reduced rate of work, shorter hours and rest periods.

All-out air conditioning is still in the dream stage in most industrial plants, and unfortunately in locations where it would be most welcome, the cost is likely to be prohibitive.

Air conditioning can be applied to certain locations where the space to be cooled is relatively small, and heat and humidity are extreme. An example is the cab of an overhead traveling crane, where the operator may be exposed to heat and humidity as well as vapors, gases, and dusts from operations below.

Cab coolers are self-contained units that need only an electrical connection. They supply clean air, cooled and dehumidified to the cab. Similar equipment has been designed for pulpits and other control centers in steel mills, where heat, dust, and fumes may be troublesome.

Measures for combating the effects of heat involve the worker, the process and the plant.

1. The Employee

All other things being equal, healthy people can stand heat better than unhealthy persons. Some, of course, can stand more than others. Pre-employment examinations will give some idea of the individual's general health, but usually the only way to determine his tolerance is to try him out on the job.

Acclimatization. Short daily exposure during the first week on the job will show his fitness for hot work. If he is reasonably fit, his tolerance should be up to 80 per cent at the end of the week. In another week of increasing exposures he should be able to keep up with the veterans.

Medical supervision. Men exposed to high temperatures need health supervision. That includes periodic physical examination and control of hours of work. It also means tactful observation and education on nutrition, use of alcohol, and general habits of living.

DRINKING FOUNTAIN, with salt tablet dispenser near by, is one of the best preventives of hot weather discomfort.

Salt and water replacement. Sweating is one of nature's ways of cooling the body. Sweat is a weak solution of sodium chloride (common salt) with urea and small amounts of calcium, iron, potassium, and lactic acid. Loss of these chemicals is not serious, unless perspiration is profuse or strenuous work is performed for long periods in excessive heat.

In such circumstances water and salt must be replaced. Some 70 per cent of the body's weight is composed of water, and loss through urination, perspiration, and breathing may vary from 3 to 10 quarts daily.

Dehydration and heat exhaustion may be the result of excessive fluid loss. Severe muscular cramps in the legs and abdomen are caused by salt deficiency.

To compensate for salt loss through perspiration, salt tablets are widely used. Dispensers usually are placed by the drinking fountains. For isolated jobs, the tablets may be issued in small containers. Persons on restricted diets should follow their doctors' orders.

Workers tend to drink less water than needed to replace the loss through perspiration. One benefit of taking salt is it increases thirst and intake of water.

Washroom facilities. Water for external, as well as internal, use is helpful in relieving heat and fatigue. Wash-up and shower facilities, with a good skin cleanser,

—To page 143

NEW!

Revolutionary sole made with NEOPRENE plus NYLON CORD

Exclusive!

BILTRITE SURESTEP NYLON CORD NEOPRENE SOLES

Dupont Nylon Cord — the *same* nylon cord used in premium auto tires — gives these slip-resistant neoprene safety soles all these advantages:

- *Far more rugged wear*
- *Greater abrasion resistance*
- *Extra resistance to oil, grease, acids and chemicals*
- *Comfortable resilience and flexibility*

World's largest producer of shoe soling materials

Biltrite Industrial Soles also available in

Surestep Neoprene

Saf-T-Cel Neoprene

Super-Lite Cork

Saf-T-Step Neoprene Cork

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HEELS AND SOLES

AMERICAN BILTRITE RUBBER COMPANY Chelsea 50, Mass.

Warehouses: 4464 District Boulevard, Los Angeles — 1010 Gratiot Street, St. Louis — In Canada: American Biltrite Rubber Co. (Canada) Ltd., Sherbrooke, Que.

New M-S-A® Suspension gives you double cradle for

The new M-S-A "Fixed-Crown" Suspension for Skullgard hats and caps—with its unique double cradle design—is the answer to industry's need for the ultimate in head protection *and* comfort.

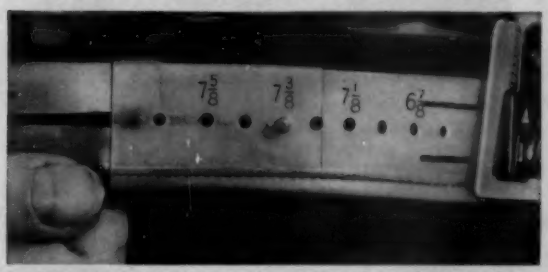
This suspension more than meets the Federal specifications of at least a 1¼" crown clearance between the wearer's head and the inside top of the shell. This crown clearance—so important when a heavy object falls on the hat—is made tamper-proof by a permanently fixed upper cradle providing a built-in margin of safety.

And how do you adjust for comfort? That's up to the wearer. The lower cradle, the one for comfort, is adjustable to the wearer's own

EASILY INSERTED AND REMOVED. Four wide snaps have positive spring steel lock-in catch. Permits easy removal and insertion, but prevents accidental detachment in the field.

ELIMINATES PRESSURE POINTS. Metal snaps are recessed into plastic frames. This exclusive design feature reduces layer thickness at points of contact.

AIR CUSHION SWEATBAND. The sweatband is designed with a rolled edge which provides an air cushion effect for greater comfort. Tab at end of sweatband keeps it smooth and free of bulges.



FAST SIZE ADJUSTMENT. Size adjustments can be made in seconds with a simple collar button device. Head sizes are stamped on the sweatband backing which can be adjusted in one-eighth units.

❶ "Fixed-Crown" Clearance and ❷ Adjustable Comfort

personal requirements. But this comfort adjustment won't affect that extra margin of protection in the upper cradle.

This new M-S-A "Fixed-Crown" Suspension is adaptable for MSA's Type K and Type B Skullgards, and the M-S-A Glass Fiber Hat. There's no cleaning problem, either. The suspension cradle is made of long-lasting, easily sanitized, plastic webbing. It's mildew-proof. Oil-proof. Acid-proof.

Check the other features of the new suspension illustrated above. And get in touch with the MSA man for answers to specific questions. Write for descriptive bulletin today.

MSA
SAFETY EQUIPMENT HEADQUARTERS

MINE SAFETY APPLIANCES COMPANY
Pittsburgh 8, Pennsylvania

AROUND THE COMPASS

ACTIVITIES • PROGRAMS • EVENTS

By Nils Lofgren

Field Service Department, NSC

Tom Burke to Serve Marin County

When the Marin County (Calif.) Safety Council was recently organized, Tom Burke, one of the elder statesmen of the safety council movement, stepped out of retirement and accepted the call to help this new organization get firmly established.

Tom, for many years an NSC staff member and widely known in the safety field, agreed to serve as interim manager for the new council. The Marin Council was created through the efforts of the California Traffic Safety Foundation as part of its organizational program for the state.

Harold Schink New Manager at Racine

Harold A. Schink has been named secretary-manager of the Racine County (Wis.) Safety Council. This position was vacated in July when Robert M. Sorensen resigned to become a district director for NSC.

Mr. Schink, 37, was formerly industrial safety director at Massey-Harris-Ferguson, Inc.

Oregon Group Elects New President

Frank A. Dresslar, vice president and general manager in Portland of the Pacific Telephone & Telegraph Company, was elected president of the Highway Lifesavers Committee of Oregon Citizens, Inc., at a meeting of the Board of Trustees on Tuesday, January 14. He will succeed E. C. Sammons, president of the United States National Bank, who has served since the organization of the Committee in early 1953.

A statewide meeting of trustees, members, and others was held on February 22 in the Portland City Council chambers.

At this meeting a program of citizen support for the official traffic safety program headed by the Oregon Traffic Safety Commission was adopted.

Home Division Compiles Program Ideas

The Home Division of NSC has recently mimeographed a compilation of "285 Home Program Ideas."

This booklet provides a representative sample of home safety ideas and avenues of approach that have been successful. The source for many of these ideas was the 1955 and 1956 Home Safety Inventories.

Because the supply is limited only single copies are available, but all or part of the booklet can be reproduced.

Welcome!

Thirteen additional safety organizations have subscribed to the local council membership of the National Safety Council this year. These are listed below.

Citizens Safety Council of Winnebago County: Clint Maslen, president c/o Keig-Stevens Baking Company, 516 Green Street, Rockford Ill.

Public Safety Committee, Greater Greenfield Chamber of Commerce: Ernest Tracey, Jr., chairman, 110 East Main Street, Greenfield, Ind.

Oelwein Safety Council: Richard O. Shirk, vice president, 990 South Frederick Avenue, Oelwein, Iowa.

Daviess County Safety Council: C. B. Sublett, chairman c/o Texas Gas Transmission Corp., P. O. Box 577, Owensboro, Ky.

Massachusetts Safety Council: Bruce Campbell, manager, 31 State Street, Boston 9.

Isabella County Safety Council: Mrs.

PENNANT and certificates are presented to Captain Profeta, *S. S. Excambion*, by New Jersey Governor Meyner and Mrs. Meyner. In the photo are Maitland Pennington, chairman, Marine Section, National Safety Council-American Merchant Marine Institute award committee, Captain Profeta, Mrs. Meyner, Governor Meyner, and L. H. Quackenbush, general chairman of the joint industry safety council.

Governor Meyner Presents Ship Safety Award

New Jersey Governor Robert B. Meyner and Mrs. Meyner presented the top passenger ship safety achievement award for 1957 to Captain William S. Profeta, of the American Export Lines' *S. S. Excambion*, and its crew at a shipboard ceremony, Hoboken, N.J., on April 9. The award, consisting of a pennant for the vessel and individual certificates for the Master and each member of the crew, recognized successful completion of a mercy mission in mid-Atlantic last December. Responding to a radio distress signal from the Norwegian freighter *Tana*, *Excambion* deviated more than one hundred miles off course in heavy seas, took aboard a seaman critically ill with double pneumonia, and restored him to health.

tops

Tops in COMFORT

To men who wear safety hats all day long, comfort is important. And to be comfortable, a hat must fit well and bear smoothly and evenly on the head. Like Jackson's.

Jackson safety hats and caps give you unequaled ease of size adjustment. See for yourself how little it takes to fit the headband to your clearly marked hat size and how firmly it is kept that way. Smooth and flexible, the polyethylene headband (uneffected by temperature, moisture and acids) is firm enough to hold its shape and has a soft-backed leatherette sweatband all around.

Being easy to adjust, men will fit these hats accurately and find they stay on better, even while working in unusual positions and windy weather. And, of course, Jackson chin straps and 'Winterizers' are easily attached in case of really cold and rough conditions.

Tops in STYLE

For men to wear safety hats eagerly and even proudly, appearance is essential. Jackson's protect a man without looking bulky, they have a clean, uncluttered look. They present a shiny, smooth finish, and it is easy to keep them spick-and-span.

Tops in SAFETY

Thorough comparative testing against published, industry-accepted standards proved that Jackson's three types of safety hats and caps, each in its own class, offer an extra margin of safety which should make Jackson your choice. They're tops!

Sold World-Wide through Distributors and Dealers of Welding Supplies and Safety Equipment

Jackson Products

WARREN • MICHIGAN

The 'Top Hat' for Safety . . . the JACKSON 'LIFE GUARD' offers unequalled extra protection to workers in many trades by surpassing both the Edison Institute requirements for line workers' and the Federal Specifications for construction workers' hats. A hat and a cap in white, yellow and grey.

JACKSON FIBER GLASS hats and caps surpass all Federal tests for construction workers' safety hats. In white, grey and six other standard colors. These caps, as well as the Life Guard caps, are also available in combinations with Jackson welding helmets, goggles and a variety of face shields.

The JACKSON 'ALUMIHAT' complies with all Federal requirements (including impact and penetration resistance) except electrical insulation. The heat-treated aluminum shell is anodized to a soft satin finish to reflect heat without undue glare. The full brim is strengthened by a strong, rolled edge.

Circle Item No. 21—Reader Service Card

Winsor Dunbar, chairman, 1014 East High Street, Mt. Pleasant, Mich.

Paramus Safety Council: Robert M. Brinley, president, Forest & Wilson Avenues, Paramus, N. J.

McAlester Safety Council: R. D. Bradford, chairman, P. O. Box 737, McAlester, Okla.

Grand Prairie Safety Council: Bud Sylvia, president, P. O. Box 447, Grand Prairie, Tex.

Ogden-Weber Safety Council: Joseph A. Lehner, president, 3902 Jackson Avenue, Ogden, Utah.

Moses Lake Safety Council: Myrtle E. Paterson, secretary, Box 1564, Moses Lake, Wash.

Natrona County Safety Council: S. Gordon MacMillan, secretary, 1345 Sycamore, Casper, Wyo.

Greater Anchorage Safety Council: John A. Scheffer, secretary, 601 "C" Street—Room 203, Anchorage, Alaska.

Kansas Plans Teen-age Conference

Advance indications at press time were that at least 3,500 Kansas young people and several hundred from other states would attend the national Teen-age Traffic Safety Conference meeting in Kansas City, Kan. April 18 and 19. The conference was sponsored by the Kansas Teen-age Traffic Safety Association.

Every high school in Kansas had received an invitation to send delegates. Free lodging, breakfast, and transportation to and from meetings during the conference was to be provided by high school students in the Kansas City area.

Nationally known speakers were planned for the Saturday program. Tentative plans included an address by Secretary of Commerce Sinclair Weeks, Congressman Kenneth Roberts of Alabama, member of the U. S. Legislative Committee on Highways, and other leading speakers.

Lehigh Valley Council Elects New President, Honors Old

The Lehigh Valley Safety Council installed George J. Frantz, Jr., Bethlehem, vice president of United Gas Improvement, as Council president on January 16, the 45th annual meeting of the Council.

Frantz succeeds Harry N. Crowder, Jr., Easton, who has served as president of the Council for the past five years and

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A PRODUCT OF NATIONAL RESEARCH

A PRODUCT OF NATIONAL RESEARCH

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MINT-AIRE KILLS AIR-BORNE VIRUS AND BACTERIA

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Circle Item No. 22—Reader Service Card

INDUSTRIAL HEALTH

Abstracts of current literature
on Occupational Hygiene, Medicine, and Nursing

By E. L. Alpaugh, *Industrial Hygienist, NSC*

Medical Radiation Exposures

"Radiation Dose to Gonads From Diagnostic X-Ray Exposure." By Thomas A. Lincoln, M.D., and Edwin D. Gupton, M.S., Oak Ridge, Tenn. *Journal of the American Medical Association* (January 1958).

IN 1956 THE INTERNATIONAL Committee on Radiation Protection estimated that 4 rems (roentgen-equivalent-man) of the 10-rem limit they planned to set for the average gonad dose to age 30 would come from medical radiation exposures. The roentgen-equivalent-man is the quantity of any radiation such that the energy imparted to a biological system per gram of living matter by ionizing particles present in the region of interest has the same biological effectiveness as an absorbed dose of one rad of lightly filtered x-rays generated at potentials of 200 to 300 kilovolts.

In addition to the 4 rem estimated for medical exposures, 2 rem are allowed for occupational exposures and 4 rem from all other sources except natural background. Because ionizing radiation can induce mutations and thus result in genetic damage that is cumulative, the usual small gonad dose from individual roentgenographic examinations assumes greater significance.

This study was designed to make estimations of the radiation dosage to the skin at the focal point of entry and to the gonads during routine roentgenographic procedures at the Oak Ridge National Laboratory. Basic data were obtained from direct measurements of radiation in a human-size tissue equivalent phantom, in air at table top during typical diagnostic exposures, and from clinical records.

The phantom used was a female display mannikin filled with paraffin, specific gravity 0.93. Two polyethylene bottles were inserted to simulate the lungs, Small ion chambers were inserted in cavities located in the region of the female gonads and ion chambers in a paraffin-walled receptacle recorded male gonad dose measurements.

As would be expected, skin dosages were always much higher than doses to the reproductive organs.

The total combined (male and female) average gonadal dose per year was 16-millirads over a nine-year period. This was composed of 13 millirads from all abdominal area exposures, 2.8 millirads from chest roentgenograms, and 0.3 millirads from head, extremity, and all other exposures. The average total gonadal dose per year for males alone was 13 millirads compared to 35 millirads for females. The average gonad dose from diagnostic x-ray exposures received per person during one generation (30 years) would thus amount to 480 millirads. This is approximately one-tenth of the probable maximum estimate predicted for medical diagnostic x-ray exposures by other investigators.

Limiting the number of abdominal area examinations, particularly on children, is very important, as well as minimizing the gonad dose during each examination. The technique used when an examination is made is important. Using the highest practical kilovoltage, lowest milliamperage, and the largest amount of filtration will appreciably lower the skin and gonad dose.

When one increases the kilovoltage he increases the proportion of shorter wave length, and, therefore more penetrating, x-rays. These are principally the ones which ultimately expose the film. Decreasing the milliamperage proportionately decreases the intensity of the x-ray beam. Filtration removes a large portion of the useless longer-wave-length radiation which contributes so much to the skin dose and somewhat less to the male gonad dose but does not penetrate the body part to expose the film.

A cone will frequently limit the exposure to the area of primary interest, thus avoiding unnecessary gonad exposure.

Three Simple Steps

To obtain a reduction of the gonad dose from diagnostic x-rays, three realistic recommendations are emphasized. These three simple steps can be achieved over a short period of time with the help of x-ray machine and film suppliers and technicians:

1. Use a cone or diaphragm of minimum practicable size to reduce the dose to all areas outside the field of interest.

2. Use filtration (two to three millimeters, aluminum) at the source to reduce considerably the dose due to useless soft and scattered radiation.

3. Use the highest kilovoltage and the lowest milliamperage technique which is practicable.

Maintenance of accurate individual dose records is important, and it is suggested that industry is a logical place to start keeping these records. It should be possible to expand already existing

—*To page 161*

Weeds are a hazard you can't afford...

Get rid of them with Baron, Radapon and other Dow products

Does the man in the photo strike you as a safety man? Well, he is. He's eliminating a fire hazard by spraying weed and grass killing Baron® along the fence line.

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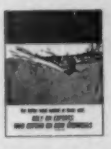

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Circle Item No. 23—Reader Service Card

Voice of the Reader

Let's have your views on current topics. You don't have to agree with us

Bad Luck in Hexed Circle?

DAYTON, OHIO. I would like to invite your attention to the article, "Hexed Circle," page 35, NATIONAL SAFETY NEWS, April 1958 issue. Let us analyze this situation.

The painted stripe, stenciled "Caution," establishes the area over which the door swings when completely opened from the closed position and vice versa. This is a good idea. However, the more serious accident potential is not considered in this drawing. Let us say that an employee is proceeding from right to left in this picture. He sees the circle and should avoid crossing or walking through this area. Suppose the person were looking more toward

MR. COLE'S suggestion for a refinement of the suggestion.

the floor than forward. He would see the caution line possibly early enough to avoid stepping into the area. Let us say that he did take one or two steps into the area and altered his path as the door was opened. In this case, he may strike the flat surface of the door with possibly a glancing lick.

Now, let us reverse the situation. Let the person be proceeding from left to right in this picture. Here is where the more

serious accident potential lies. Just about the time the pedestrian gets up to the caution line the door is opened and he strikes the edge of the door. In my opinion, this is a more serious accident potential. Therefore, I suggest that this idea be altered to include the protection from striking the edge of the opened door.

—E. E. COLE, *Deputy Chief, Ground Safety Office, Wright-Patterson Air Force Base, Ohio*

Praise for "The Diary"

BATH, N. Y. The fictional article, "Max Again," by Bill Andrews, struck a very responsive chord in our office for two reasons: (1) That any ladder pre-tested should be withdrawn from service. (2) That 80 to 90 per cent of the protection the purchaser hopes to get from his ladder supplier lies in the trust and integrity of the manufacturer.

As manufacturers of wood ladders, we are particularly conscious that wood ladders must be manufactured to a high safety factor. No one knows better than we that wood is a variable medium and that it takes diligent inspection of wood stock to separate the acceptable pieces from stock that does not measure up to high standards.

We compliment Mr. Andrews on this very pointed sketch.

—H. S. BRADLEY, *Sales Manager, The W. W. Babcock Co., Inc.*

Safety Standards

CHICAGO. In the article on Protective Clothing on page 146 of the March NEWS, the paragraph on Standards states that the American Standards Association Protective Clothing Standards were widely used by private industry during World War II and are still accepted standards.

To our mind, this paragraph could have been eliminated. These standards were set up primarily for the government during World War II. They were used by very few manufacturers and are not used by anybody now.

My father was chairman of the Safety Wearing Apparel Committee that prepared these standards and he spent endless time prepar-

—*To page 74*

THE ACCIDENT BAROMETER

Prepared by the Statistics Division, National Safety Council

THE TREND of accidental deaths in January was downward compared to 1957. The fatality toll was 7,200, or 5 per cent below 7,600 in January a year ago. Most of the reduction occurred in home and motor-vehicle but deaths from public non-motor-vehicle and work accidents also were down.

Motor-Vehicle Deaths

The motor-vehicle death total was approximately 2,730, or 5 per cent below January, 1957. Compared to 1956 it was a decrease of 8 per cent.

Mileage data are not available at this time to calculate a rate on this basis for January.

Of the 47 states reporting for January, 21 had fewer deaths than in 1957, 4 had the same number and 22 had more deaths. Reporting cities with populations of more than 10,000 showed no change from the previous year. Of the 632 cities reporting, 111 showed decreases, 420 had no change and 101 had increases.

Regional changes from 1957 in the January motor-vehicle death totals were:

North Atlantic	+28%
South Atlantic	—12%
North Central	—10%
South Central	—15%
Mountain	+ 6%
Pacific	+ 1%

Work Accidents

There were about 1,250 deaths from work accidents in January, or 4 per cent fewer than occurred a year ago.

The January frequency rate (disabling injuries per million man-hours) for plants in community council contests was 4.10, down 15 per cent from last year. Based on preliminary information, the rate for sectional accident prevention contests conducted by the National Safety Council showed an upward trend.

Public Deaths

The January death total for public non-motor-vehicle accidents was 1,050, or 5 per cent below 1957. This reduction took place despite the fact that changes in the definition of Home have reclassified some cases to Public.

Most of the decrease occurred in fatal burns and transportation accidents but deaths from drownings, falls, and firearms accidents also were fewer. Deaths of children under 15 years of age and persons 25 to 44 and 45 to 64 years old were down while deaths of young people 15 to 24 years of age and persons 65 years and over were up.

Home Deaths

The home accident death toll for January was 2,400, or 8 per cent below January a year ago. There were sizable decreases in deaths from poisonings and burns, small reductions in mechanical suffocation and falls, and a large increase in firearms accident fatalities. All age groups showed some reduction from 1957 with the greatest improvement recorded for children 5 to 14 years old.

"Why didn't we think of filter tips before?"

Grant to Aid Traffic Safety Projects

Receipt of a $153,600 grant from the Automotive Safety Foundation to finance the Annual Inventory of Traffic Safety Activities and other projects during 1958 has been announced by the National Safety Council.

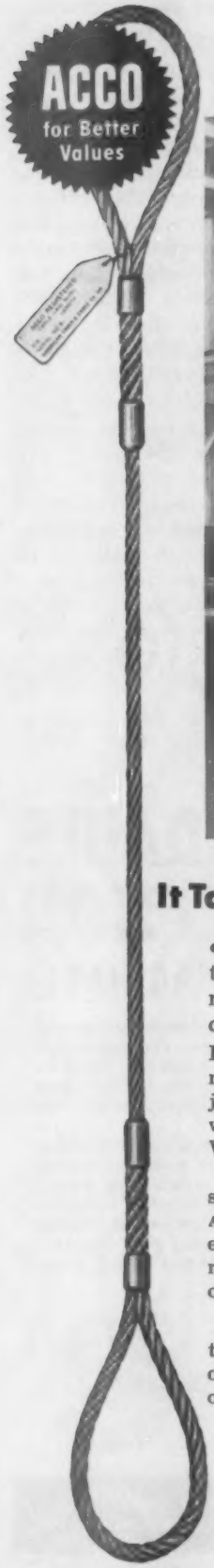
The Annual Inventory of Traffic Safety Activities measures the traffic management and accident prevention work of the 48 states and more than 1,200 cities against national standards, and determines where improvements are needed.

Related to the Annual Inventory and supported by the Foundation grant is a statistical analysis of certain items of the Inventory reports, to determine common factors and the influences they may have.

In addition, the Foundation grant helps finance the Council's research correlation service, which collects and maintains information on highway traffic research. Its aim is to obtain wider application of research findings and to seek sponsors for needed research. As part of the service, selected research reports are published in the Council's *Traffic Safety* magazine.

The Foundation is a nonprofit organization dedicated to education and research for safe, efficient highway transportation. Foundation activities are carried on through grants of funds and provision of technical staff services upon request of states, municipalities, public officials, national organizations, and educational and research institutions.

The Foundation's work is supported by more than 600 companies and associations representing automobile manufacturers, petroleum and asphalt companies, parts and accessories manufacturers, rubber tire manufacturers, advertising agencies and media, steel companies, automobile finance companies, the Portland cement industry, major banks, automobile and tire dealers, insurance companies, and school bus manufacturers.



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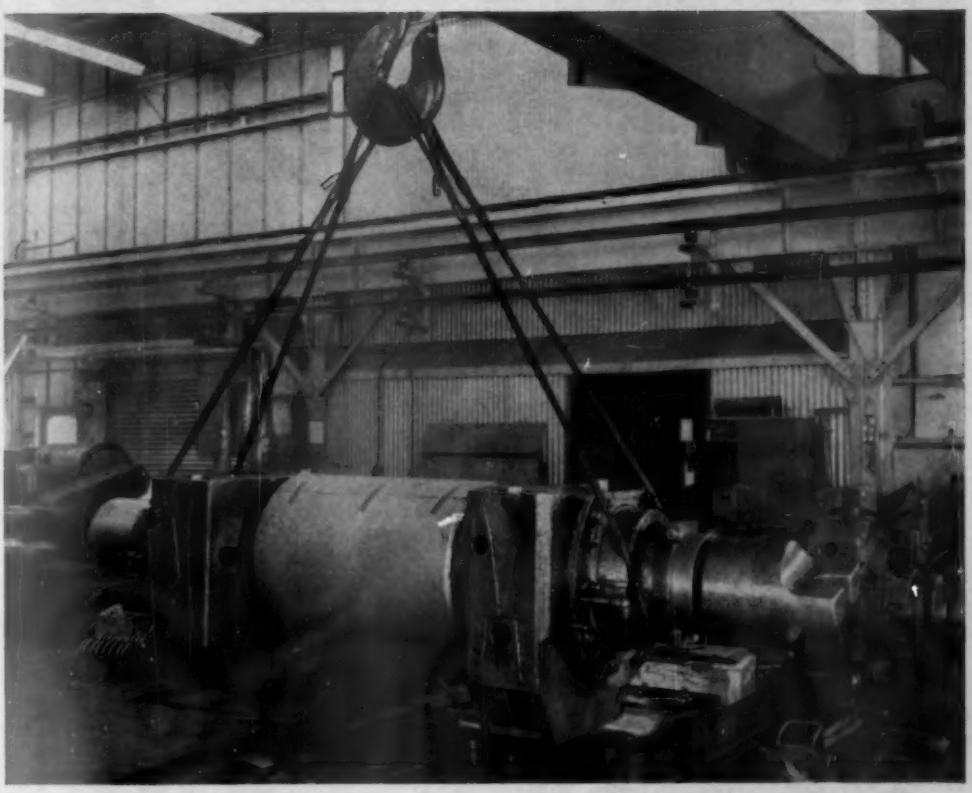

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• Behind the scenes of an important lifting operation like this is a key member of the production team—the rigger. Many times a day he sets up and supervises the moving of finished products or major assemblies worth thousands of dollars. He carries a heavy responsibility in the success or failure of any production operation.

Because the productive role of your rigger is such a vital one, make certain that he has precision-made tools to do his job, just like any other skilled worker in your plant. And where wire rope slings are concerned, this means ACCO *Registered* Wire Rope Slings.

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Circle Item No. 26—Reader Service Card

Voice of the Reader

—From page 71

ing the first standards ever turned out in our industry. It was indeed a tremendous job and served a useful purpose during the war years.

However, since the war there has been such a wide variance in specifications and materials with new ones being introduced almost daily that these standards are now quite obsolete. It has been decided not to revise them.

—H. F. WHEELER
Wheeler Protective Apparel, Inc.

Thanks from Germany

DUISBERG-HUCKINGEN, GERMANY. Five years ago, I had the pleasure of studying safety in several plants in the United States and at the National Safety Council headquarters in Chicago. Since that visit I have kept in touch with the safety movement in America through the pages of the NATIONAL SAFETY NEWS. I have gotten many valuable suggestions from the NEWS—especially from the poster pages. We have used some of these posters, and have gotten ideas from others.

I am sending along some photo-

graphs of posters which were developed in our plant. They may show the exchange of experiences is one of the best ways to advance our common cause—work safety.

Many thanks for all your help.
—HANS STEEG, Mannesmann-Huettenwerke.

Getting Rid of Wasps

HARTFORD, CONN. In looking over some old copies of the NEWS I came across the attached from the April 1957 issue. (Consultation Corner, page 59).

I don't wonder that whoever made the inquiry about using a fire extinguisher to kill wasps was somewhat disturbed and sought information on something less toxic than carbon tetrachloride. It seems to me that whoever answered this question passed on some very dangerous advice. Using a carbon tetrachloride extinguisher for this purpose, particularly where the nests are overhead, would envelop the user in a cloud of carbon tetrachloride vapor and subject him to concentrations far beyond what can be tolerated for even a short time.

It would appear that the answer to this query was written by someone who had no experience with either insecticides or carbon te-

trachloride and attempted to get the answer from some reference book. Almost any insecticide sold in grocery stores and garden centers would not only be more effective but far safer. Preference would be given to a pyrethrum spray as this knocks down insects very quickly and is not toxic to humans.

However, I have found almost any of the commonly sold aerosol bombs quite effective. While it may be that some insecticides are more toxic to humans than carbon tetrachloride, the aerosol bomb sprays out only an infinitesimal amount of the 5 per cent concentration compared to the deluge of poisonous carbon tetrachloride sprayed by a fire extinguisher.

—H. H. ALLEN MORRIS, *Manager Engineering Dept., Aetna Insurance Co.*

EDITOR'S NOTE. In getting rid of wasps' nests, the insecticide is only one of the hazards. Multiple stings and falling from a ladder, or both, are possibilities. Household bug bombs are quite effective against stray insects in a closed room but would one have sufficient lethal capacity to subdue a whole nest full of indignant wasps in the open? This would seem like a job for a professional exterminator with equipment and know how.

Anybody had any experience along this line?

Likes Equipment Issue

ST. PAUL, MINN. I have just reviewed your March, 1958 issue of the NATIONAL SAFETY NEWS and find it 100 per cent informative as usual.

I would appreciate your sending me six additional copies of this issue to provide our industrial representatives as part of their educational program. The sections on Personal Protective Equipment are excellent and will provide valuable information for our people.

—R. L. ANDERSON, SECRETARY, *Kindy Optical Co.*

It's easy to find your station in life—sooner or later someone will tell you where to get off.

Test Resistance on Lightning Arresters

Ground resistance for lightning arresters, including rods on stacks, should not exceed 5 ohms. When resistance is too high, a lightning surge will not dissipate properly to earth.

Lightning arresters are necessary for protection of power systems during violent electrical storms and ground tests should be made at least once a year, preferably just prior to the anticipated thunderstorm season.

The essential difference between ground testers and insulation testers is that the ground testers use low voltage ac. instead of high voltage dc. and readings are in ohms instead of megohms.

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NEW BULLARD WEATHER-CONDITIONED UNIT FIRST AID

Dense morning dews, fog, humidity, and driving rains all find ways to seep in and destroy your unit first aid supplies. Now you can have positive protection against costly first aid moisture damage. Every unit in *Weather-conditioned* Bullard First Aid Kits is sealed in clear polyethylene. Even liquids are packaged in non-breakable polyethylene. Under the most extreme conditions, when ordinary first aid wrappings would deteriorate, Bullard units are as fresh as the day they were packaged. You can't buy better protected unit first aid . . . Yet, Bullard costs no more.

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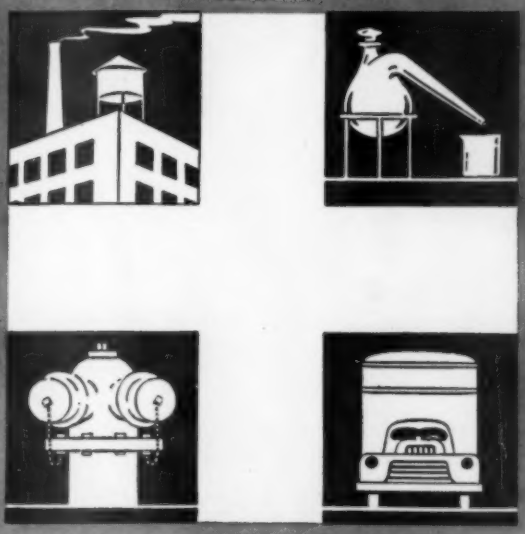
TECHNICAL FEATURE SECTION

The Journal

OF THE AMERICAN SOCIETY OF SAFETY ENGINEERS



MAY, 1958

In this issue

AMERICAN SOCIETY OF SAFETY ENGINEERS

Organized 1911 — Chartered 1915

425 North Michigan Avenue, Chicago 11, Ill.

managing director, J. B. JOHNSON

editor, ROBERT E. BEIGHLEY

associate editor, CHARLES S. WOLFF

art direction, THAD HACKETT

This Journal section is the official technical publication of the American Society of Safety Engineers. It will appear quarterly in the National Safety News as a service to the Society by the National Safety Council. Separately bound copies of this section for exchange purposes are provided the Society by the Council.

CURRENTLY the American Society of Safety Engineers has twelve Standing Committees and seven Special Committees on the national level—in addition to countless local committees in the Society's 68 chapters—all working on projects to increase the knowledge and prestige of the safety engineer and advance the safety movement. For those who may wish to communicate with any of the national committees, the names and addresses of the 19 chairmen are published on the inside back cover of this Journal issue . . . One outstanding and timely example of Society committee work is a study of the organizational status of the safety engineer, now being conducted by the national Special Committee on Membership Services. This study has been undertaken to expand and bring up to date a similar Society study made in 1951. Within the next month, every Society member will receive a confidential questionnaire to fill out and return to national headquarters. The results will be published in the Journal as soon as available. We urge all members to cooperate in this project, so highly important to the profession.—Editor

Our President Speaks on SAFETY

OUR nation for many decades has been recognized as a leader in technological advances. As these developments have become integrated into the pattern of American life and, most particularly, American industry, a parallel advancement of safety engineering "know-how" has kept pace, as evidenced by a steady reduction in injury frequency and severity rates over the years.

Today, as perhaps never before in our history, emphasis is being placed on scientific research. Virtually the entire free world is looking to our country to maintain its technological leadership. As a result, new machines and methods are being introduced into industrial operations in unprecedented numbers. For example, X-ray machinery of various types is finding a place in more and more plants; television is beginning to be made use of; isotopes are becoming a part of manufacturing processes; atomic reactors are being developed as power plants. Other technological advances, which may be of even greater impact, are in the immediate offing.

In this rapidly changing situation, and in view of world conditions, the conduct of the safety engineering profession becomes of increasingly acute importance. We are being challenged to keep pace with new developments from the drawing board through the laboratory and other stages so that, as science puts new life into the already lively industrial world, safety engineers will be prepared with practical, effective standards and methods to cover every possible hazard involved.

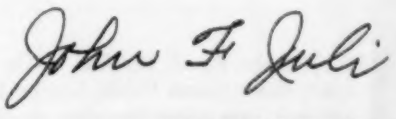
The members of our Society always must be on hand with the necessary technical information. We must learn new techniques to handle new situations and we must increase our efficiency in administering our safety programs authoritatively, with competence and confidence.

When I started to write this article, I did not intend it to be a lecture. However, I cannot conclude without mentioning still another thought. In addition to technical and business "know-how," there are other obligations we all must meet to the fullest possible extent: first, loyalty to our employer, the people with whom we work and the people with whom we associate. The other obligation is one that is so well described by this quotation from a speech of Ned A. Dearborn, president of the National Safety Council:

"The one tremendously important fact about accident prevention work is that it offers one of the best opportunities in our civilization for men and women to apply, in a practical way, the Christian principles of living in a cooperative effort to help each other. I think that this lesson of Christian living is the most important lesson our world has to learn. If we don't learn it, we're going to destroy ourselves."

And I also should like to include another quotation, from Harvey B. Jordan, executive vice president for operations, United States Steel Corporation:

"Gentlemen, the determination to save an injury to ourselves or our fellow empolyes is a Christian thought, and the successful exercise of that determination is a Christian act."



John F. Juli, President
American Society of Safety Engineers

Safety suggestion system aids safety program

Arthur J. Naquin is safety counselor for New Orleans Public Service Inc., with which he has been associated for 32 years. An engineering graduate of Tulane University, Mr. Naquin joined the Society in 1942, is a charter member and past officer of the New Orleans Chapter and past president of the Delta Safety Society. He has taught many college safety courses.

15-year experience of one plant shows correlation of employe participation and injury frequency rates

by Arthur J. Naquin

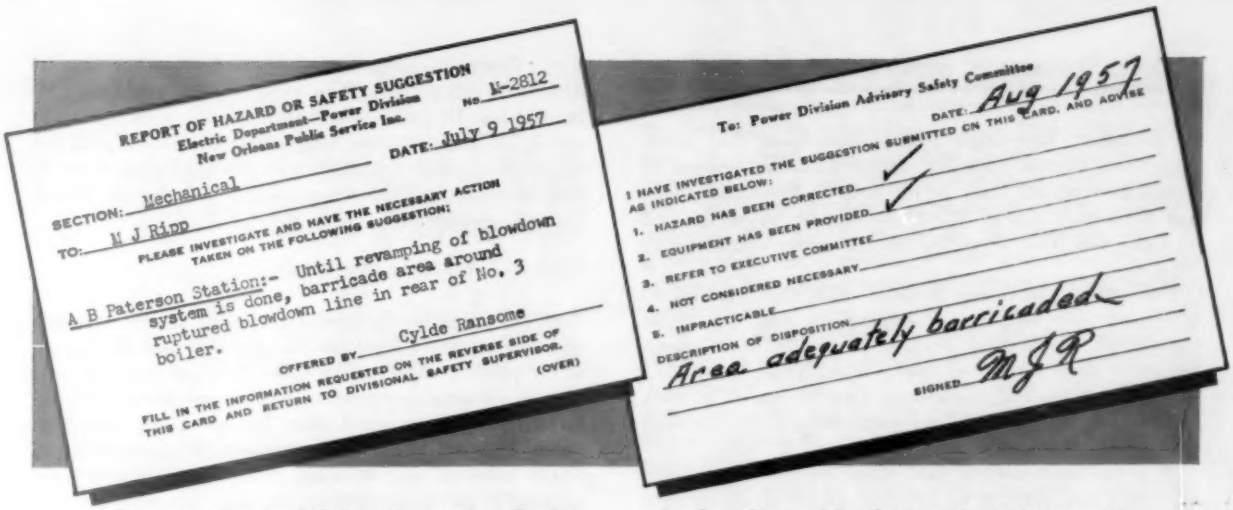
IN 1942, the Power Division of the Electric Department, New Orleans Public Service Inc., expanded its accident prevention program to facilitate and encourage the active participation of every member of the department in safety work. It soon became a routine procedure for each foreman, as he conducted a monthly safety meeting with his personnel, to ask if anyone had any suggestions to offer that would help eliminate potential sources of personal injury.

The same year the safety program was expanded, the division safety supervisor prepared a 3 by 5 inch card form to enable him to handle safety suggestions in an organized way (see Figure 1). The card, which is filled out in duplicate (one copy for the safety supervisor's file), has been designed to refer each new safety suggestion to one or more persons in authority (who previously have agreed at a monthly Safety Advisory Committee meeting to look into the feasibility and worthwhileness of the suggestion). Each safety suggestion, as received, is given a number with the letter prefix "E" or "M" to indicate whether the suggestion has originated in the Electrical or the Mechanical Section of the Power Division.

List Suggestions in Minutes

A list of all pending safety suggestions and all new safety suggestions is carried each month in the minutes of the Safety Advisory Committee of the Power Division. Figure 2 is a reproduction of typical entries in that portion of the minutes which lists all current safety suggestions. It should be noted that the listing includes the name of the person who offered the suggestion, the date on which it was offered, identifying initials of the person or persons who have agreed to investigate it, a description of the suggestion and, ultimately, the disposition made of the suggestion. The methodical way in which this portion of the accident prevention program is administered has won the confidence of all who have participated, for it is true that, once a safety suggestion is offered, it cannot get lost nor will it be forgotten.

Admittedly, this safety suggestion system of the Power Division cuts across an established routine for reporting, on the daily log sheets, matters requiring attention. Nevertheless, the Power Division's general superintendent, from the first, has encouraged general participation



REPORT OF HAZARD OR SAFETY SUGGESTION
Electric Department—Power Division
New Orleans Public Service Inc.
NO. M-2812
DATE: July 9 1957
SECTION: Mechanical
TO: M J Ripp
PLEASE INVESTIGATE AND HAVE THE NECESSARY ACTION TAKEN ON THE FOLLOWING SUGGESTION:
A B Paterson Station:- Until revamping of blowdown system is done, barricade area around ruptured blowdown line in rear of No. 3 boiler.
OFFERED BY Cylde Ransome
FILL IN THE INFORMATION REQUESTED ON THE REVERSE SIDE OF THIS CARD AND RETURN TO DIVISIONAL SAFETY SUPERVISOR.
(OVER)

To: Power Division Advisory Safety Committee
DATE: Aug 1957
I HAVE INVESTIGATED THE SUGGESTION SUBMITTED ON THIS CARD, AND ADVISE AS INDICATED BELOW:
1. HAZARD HAS BEEN CORRECTED ✓
2. EQUIPMENT HAS BEEN PROVIDED ✓
3. REFER TO EXECUTIVE COMMITTEE
4. NOT CONSIDERED NECESSARY
5. IMPRACTICABLE
DESCRIPTION OF DISPOSITION
Area adequately barricaded.
SIGNED MJR

Figure 1—Front of Safety Suggestion Card is filled out by safety supervisor to refer employe's suggestion to appropriate investigator. Reverse side of card is used by the investigator to report on disposition of or advise action to be taken on the employe's safety suggestion.

Figure 2—Excerpt from minutes of Safety Advisory Committee meeting shows listing of current safety suggestions.

NO.	By Whom and Date Offered	REFERRED TO	SUGGESTION	DISPOSITION
M-2803	A Anselmo 6/6/57	M J R	A B Pat: Install drain lines at inlet end of No. 4 condenser water box.	Awaiting outage of No. 4 unit.
M-2806	F Zansler 6/11/57	B C C	Market St: Check drainage between boiler room and machine shop.	COMPLETED in August, 1957 —Catch basin installed.
M-2809	E Kimball 7/9/57	S E Jr A H J M J R B C C H N F F J F	A B Pat: Relative to safety suggestions M-2716 and 2717, include procedure for stop tagging manheads on C W tunnels when inspections are made.	COMPLETED in August, 1957 —Tagging of manheads included in committee report in connection with Safety Suggestions Nos. M-2716 and M-2717.
M-2810	E Houin 7/9/57	F J F	A B Pat: Install P A mike in elevators.	Under study.
M-2811	S Belden 7/9/57	S C B	Market St: Change electrical outlets inside of 350 lb. boiler gage board to three prong type.	COMPLETED in August, 1957 —One existing two-prong outlet replaced with three-prong outlet. Other instruments properly grounded.
M-2812	C Ransome 7/9/57	M J R	A B Pat: Until revamping of blowdown system is done, barricade area around ruptured blowdown line in rear of No. 3 boiler.	COMPLETED in August, 1957 —Area has been barricaded.

in the safety suggestion system and ruled that every suggestion offered probably contained some element of injury prevention. Thus, to the writer's knowledge, only one suggestion out of the 4,904 offered, as of the end of 1957, has been discarded as not being a true safety suggestion.

One other point was stressed with the supervisory personnel: the offering of suggestions was not to be considered a reflection on the quality of their supervision or their ability as supervisors. Thus, the matter of searching for and eliminating possible causes of work injuries has become a sincere partnership matter between each foreman and his crew associates.

It would seem natural that, after the first few months or even years, interest in any new phase of an accident prevention program would diminish. Such was the case in the second and third years of the safety suggestion program but, starting in 1945, interest and participation has steadily increased as shown on the accompanying chart (see Figure 3). And the practical quality of the suggestions has not appreciably decreased for, in 1956, 94 per cent of all those offered were approved and ultimately put into effect and, in 1957, 90 per cent have been approved and have been or probably will be adopted. These percentage figures have been very constant ever since 1942.

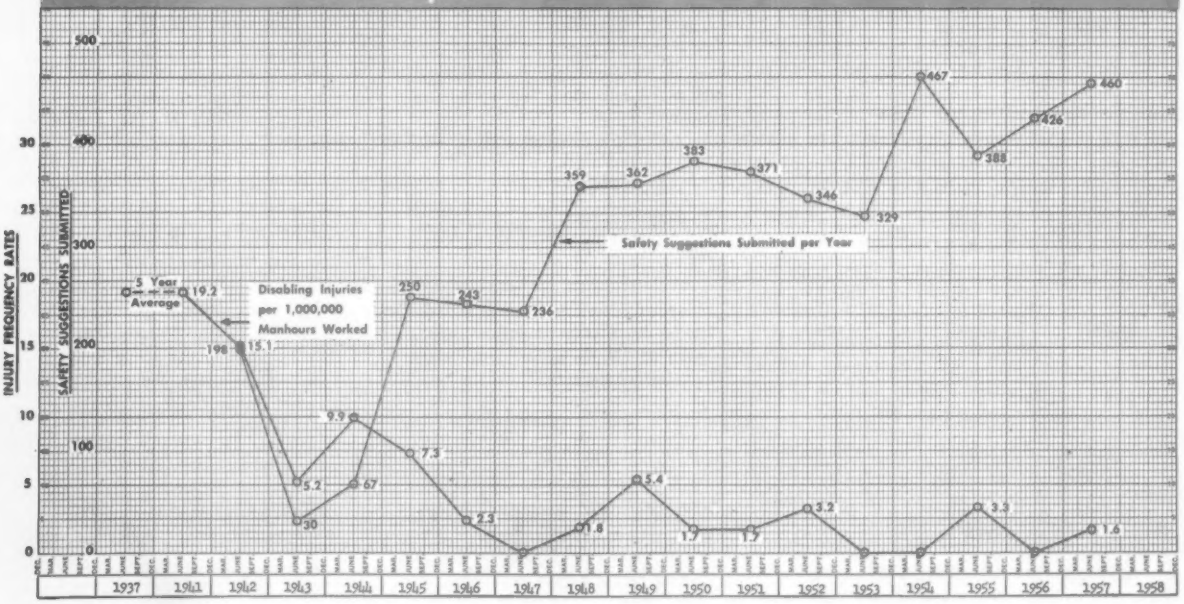
Remaining quite constant also, after 1944, is the average number of suggestions offered per year per member of the Power Division. It has ranged from a low of 1.10 in 1947 to a high of 1.74 in 1954 and has averaged 1.46 for the last 13 years. The figure for the year just past was 1.73. None of these suggestions have been paid for except in appreciative thanks to those offering them as their personal contributions toward making the Power Division a safer place to work.

Many Activities Needed

A well rounded prevention program usually consists of many activities, such as the selection and display of safety posters, showings of slide films, safetygraphs and motion pictures, presentation of demonstrations and lectures, emphasis on good plant housekeeping, consistent use of personal protective equipment, the formulating of safety rules or safe working procedures. Likewise, the offering of safety suggestions fits well into a broad program of injury prevention.

If encouraged, a safety suggestion system can offer tangible evidence of just how well an injury prevention program is understood, accepted and participated in by any given group; just how safety conscious the group is. A high ratio of understanding, acceptance and participation should be reflected in a low injury frequency rate for that group. Such has been the case in NOPSI's Power Division of the Electric Department. Apparently, there has been a correlation year by year between safety suggestion activity and injury frequency rate—not a perfect mirror correlation but something pretty close to it as shown in Figure 3.

Figure 3—Correlation of safety suggestions submitted and injury frequency rates, 1942-1957, Electric Power Division, New Orleans Public Service Inc.



by Fred R. Temple

ACCENTUATE the Positive

Plant Contest Measures SUCCESS of Safety Effort by Placing Emphasis on Self-Improvement

REMEMBER the old song, "Accentuate the positive, eliminate the negative . . ." etc.? Why not try this philosophy in the safety program? We in safety already have found the positive more acceptable and less time consuming, as proved in telling an operator how to do the job right (safely) rather than telling him all the "don'ts" in the safety manual. Desirable responses to positive thinking are greater in number and degree than are responses to the negative.

In the author's experience this positive approach most certainly has worked smoothly and achieved good results in one phase of safety programming: namely, the factory safety contest.

Nearly all plants conduct a safety contest, usually based on the frequency and severity rates. However, many Safety Departments have found that plant safety contests tend to degenerate toward two undesirable extremes:

1. The plant which puts a lot of emphasis on winning winds up with contestants who bicker about responsibility for injury, attempt alibis and may even lose sight of the objective of the contest and the safety program.

2. Where no great emphasis is put on winning, the contestants generally will lose interest and show little enthusiasm when they win.

In either case the tail wags the dog—the safety program promotes the safety contest instead of the contest being an asset to the safety program. Theoretically, the contest should make the overall program better year by year. If your safety contest has a chronic illness, it may need a change of prescription. "Accentuate the positive" may be the tonic that will put new interest and vigor into the contestants. It has paid off for us at Convair Ft. Worth and we think it will pay others, too.

In changing from our former safety contest, based solely on the frequency and severity of injury, we called together five of our superintendents whose interest and judgment we valued most highly. Consensus was that frequency and severity rates merely measured the degree of *failure* of our safety program.

We felt we needed a *better measure of the success* of our safety effort, something that would measure the *positive* things we were doing. In addition, we needed more equitable comparisons, comparing the high hazard departments with other high hazard departments rather than low hazard work with high hazard work. Furthermore, we needed some way of eliminating another situation: departments often had tie scores and we had been declaring the winner to be the department with the greater manhour exposure. In this way some small departments kept perfect scores for months without winning recognition.

To meet these needs, our Safety Engineering Section proposed a new and different contest plan whereby the departments would work against *their own potential maximum score*, not against each other. Our committee of superintendents studied the plan and approved it for use beginning January, 1954.

We have followed this contest plan since. The contestants like it and we like it. We think the departments have developed the right perspective on contests by working to better their previous scores. No department to date has made a perfect score; this is good, too, for the departments thus are provided with a continuing challenge.

The contestants, some 40 departments, have been grouped into five divisions based on similarity of the work. Judging of the contest is based on five items for which contest points are awarded monthly: (1) injury record, including all types of injury, (2) action in correcting hazards reported, (3) quality and number of safety group meetings, both with supervisors and workers, (4) safety and housekeeping inspection score of the department, (5) credit for month free of doctor case and disabling injury.

Each of the five items is explained below:

1. ***Injury Record***—200 points maximum score. (A standard of performance, expressed numerically, was set up for each division based on the prior experience of the departments in that division. Because of the way the "standard" number was computed, the higher hazard division has the larger numerical designation.) The department gets 150 points if its current experience, when calculated by the same method as the "performance standard," does not exceed the "standard" number of the division. An improvement in experience, which will result in an "experience" number lower than the "standard" number, is rewarded with an additional five points of contest score for each ten per cent the "experience" number falls below the "standard" number.

Computation of the "experience" number which, like all phases of the scoring plan, is done monthly, can be expressed by the following formula:

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Figure 1 — Monthly computation of Injury Record award points for a theoretical department.

Step I. Determining the "performance standard" number for a division (five comparable departments).

(Note: The "performance standard" number, based on prior experience, is determined before the contest starts and of course is computed only once, not monthly as is the "experience" number.)

Assume:
Division has 500 employes.
Division works 80,000 manhours per month.
For three years immediately preceding first contest year, division averaged (per month) 7.5 first aid cases, 2.5 doctor cases, .67 disabling injuries and 3.33 days lost.

1. Injury computation:

7.5 first aid cases @ 1 unit each	7.5
2.5 doctor cases @ 200 units each	500.
.67 disabling injuries @ 700 units each	469.
total	976.5
$\frac{976.5}{80} = 12.21$	12.21

(Note: 80 = 80,000 manhours ÷ 1,000)

2. Lost days computation:

Total number of days lost	3.33
Manhours worked	80,000
$\frac{3.33}{8} = .42$	.42

(Note: 8 = 80,000 manhours ÷ 10,000)

Total of (1) 12.21 and (2) .42	12.63

∴ This is "performance standard" number to be used for all departments within this division.

Step II. Determining the "experience" number for Department X for a given contest month.

Assume:
Department has 100 employes.
Department works 16,000 manhours per month.
For this contest month, department experiences 1 first aid case, 1 doctor case, no disabling injuries and no days lost.

Using formula (given in text of article):

$$E = \frac{1000\ (f + 200\ d + 700\ i) + 10{,}000\ t}{m}$$

$$E = \frac{1000\ (1 + 200 + 0) + 10{,}000\ (0)}{16{,}000}$$

$$E = \frac{201{,}000}{16{,}000}$$

$$E = 12.56$$

∴ This is "experience" number for Department X for the month.

Step III. Comparing "experience" number with "performance standard" number for Injury Record award points.

"Standard" number	12.63
"Experience" number	12.56

	Award Points
Basic points:	
Since "experience" number does not exceed "standard" number	150
Additional points:	
Since "experience" number is lower by only .55 per cent (@ 5 additional points for each 10 per cent lower)	0
Total	150

∴ Department X scores 150 points for the month in the Injury Record category.

ACCENTUATE THE POSITIVE *Continued*

$$E = \frac{1000\ (f + 200\ d + 700\ i) + 10{,}000\ t}{m}$$

where:
E = "experience" number
f = number of first aid cases[1]
d = number of doctor cases
i = number of injury cases
m = total manhours worked
t = total days lost time

Figure 1 shows the computation for a typical division.

2. ***Corrective Action***—Maximum of 100 points. Safety engineer assigned to the department will score the department and affix a rating based on the rating sheet (see Figure 2). Where a safety recommendation is written on repetitive hazards uncorrected, a penalty of 25 points is made.

3. ***Safety Committee Meetings and Minutes***—Company policy requires one supervisory safety meeting and two employe safety meetings each month. The following penalties are deducted from a maximum score of 100 points: (a) 25 points penalty for each required meeting not held (total of three meetings a month required), (b) 10 points penalty for each meeting at which the general foreman or superintendent does not preside, (c) 10 points penalty for each meeting for which no minutes are filed with the Safety Engineering Section.

4. ***Safety and Housekeeping Inspection***—Maximum of 100 points. Once each month the department is inspected and a rating is given for the safety and housekeeping performance. This rating is interpreted into a percentile score.

5. ***Credit for "Accident Free" Months***—Maximum of 100 points. If a department has no doctor case or disabling injury it is credited with 25 points

1. *Our original committee of superintendents was somewhat reluctant to include first aid injuries as part of the tabulation, for fear of keeping workers away from first aid treatment. But they agreed to try it and it has proved to be a successful part of the contest plan.*

for the month. This credit is cumulative; that is, if the department has a second consecutive month free of doctor case or disabling injury, its point credit for this second month is 50. In this way a department may continue to receive more points each month until, at the end of four such months, it is receiving the 100-point maximum every month as long as it remains free of doctor case or disabling injury.[2] Any time such an accident is experienced, the cumulative advantage is voided and the department will receive only 25 points for its next "accident free" month.

It should be noted what recognition is given to the winners in each of the five divisions and for the best performance in the entire plant. There is a small safety banner presented to each division winner on the basis of the high score in the division. The winner having the highest number of award points among the five divisions is awarded the large safety banner for the entire plant.

At first these awards were made each month but for the last two years have been made on a quarterly basis. We find that they have more significance when made quarterly. The plant's manager for operations usually presents the banners. Photographs are made and the presentations are well publicized. So far, in the four years no two departments have made tie scores for the plant banner. Two ties have been experienced in one of the divisions.

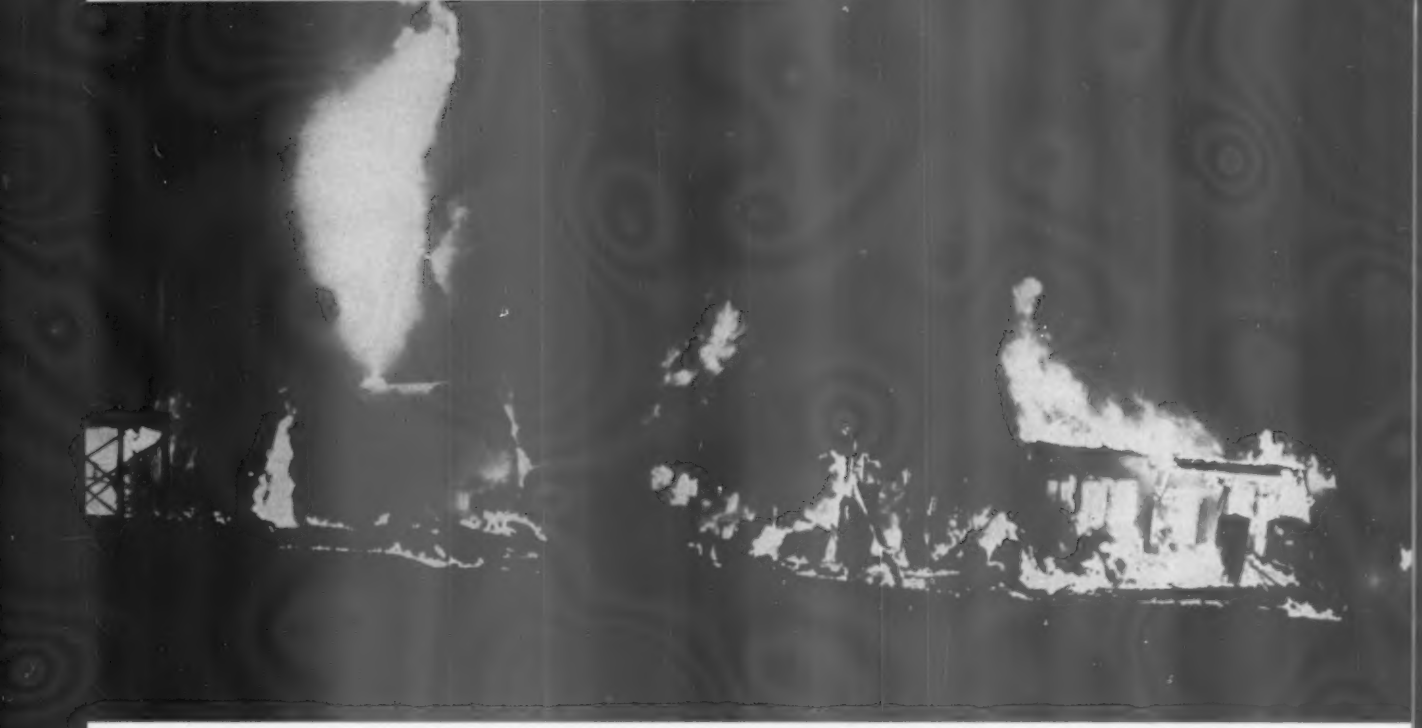
Possibly the basis for the contest at first glance seems cumbersome and somewhat complicated but it really is very little more than most plants are doing at present. The necessary information usually is available. This contest plan perhaps makes fuller use of it to stimulate activity.

In conclusion, we believe that our present safety contest comes nearer to measuring the true safety performance instead of merely measuring the failure when injury has been incurred. Accent is now on the "positive" and emphasis is on increasing the assets of a good safety performance.

2. *This schedule was set because our previous experience showed that approximately every four months a department would incur a doctor case, thus eliminating its cumulative credit.*

DEPARTMENTAL CORRECTIVE ACTIVITY	Date_____ Signed_____										
Department #											
Total Score											
RATING OF DEPARTMENT ON:											
Supervisors' general attitude toward accident prevention. (Maximum points 15)											
Alertness in detecting hazardous conditions and work practices. (Maximum points 10)											
Initiative in correction of unsafe conditions and work practices. (Maximum points 10)											
Cooperation in complying with suggestions and recommendations of safety engineer. (Maximum points 10)											
Promotion of safety activities within the department. (Maximum points 10)											
Leadership in setting example for employes. (Maximum points 10)											
Attitude of employes toward accident prevention. (Maximum points 15)											
Absence of recurring unsafe conditions and work practices. (Maximum points 10)											
Readiness to take necessary action to correct violations. (Maximum points 10)											

Figure 2—Rating sheet for scoring departmental performance in taking corrective action on known hazards.



Unprotected steel supports under two tanks failed when exposed to fire, releasing 25,000 gallons of gasoline.

Safe Handling, Use and Storage

by Miles E. Woodworth

NFPA flammable liquids engineer offers authoritative review of hazards and safety measures; directs readers to pertinent literature

WHAT is a flammable liquid? Although definitions vary considerably, most classification systems are based solely on flash point; but the method of test for flash point may vary also. Flash point is the most significant and readily identifiable of the characteristics of a material.

Flash point of a liquid is the temperature at which it gives off vapor sufficient to form an ignitible mixture with the air near the surface of the liquid or within the vessel used. The closed cup flash point, recommended by the National Fire Protection Association, will result generally in a lower figure than the open cup test method. Interstate Commerce Commission regulations call for a

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red label on those products which have a flash point below 80° F. by the open cup test method. At this flash point the 80° F. open cup is comparable to the 70° F. closed cup test method.

A good safety man may need also to consider some of the approximately 30 other characteristics of flammable liquids which may affect the safe use of the material. These factors include flammable limits, ignition temperature, vapor density, specific gravity, toxicity under both normal and fire conditions, effect of temperature and pressure, stability or reactivity under conditions of contamination or heat.

Currently there is considerable investigation being conducted on the need for including factors other than flash point—i.e., stability of the product and the health hazard under fire conditions—to assist the user in identifying the hazard of materials. Safety Data Sheets of the Manufacturing Chemists' Association[1] are very valuable in providing authoritative information on a variety of chemicals. As an example of the problem of complete reliance on flash point, a comparison could be made between two identical tanks with one containing gasoline and the other ethylene oxide. The flash point of gasoline is given at —45° F. and for ethylene oxide

# of Flammable Liquids in Industry

at below 0° F. Presuming both of these tanks to be surrounded by fire, what would happen? The gasoline tank, if properly vented, would burn only at the vents. On the other hand, when the vapors of the ethylene oxide in the tank were heated to 1060° F. the vapors in the tank would detonate spontaneously.

The safety and fire protection man of today must consider not only the hazards of a product by itself but also what effect contamination with other products will cause. In one case 10 firemen were killed when a combination of factors caused an uncontrolled chemical reaction to take place which overpressured and ruptured the storage tank.[2] Three were killed by the rupturing of the tank and the other seven by the highly toxic vapors released thereby.

In case of any question on the safe handling of these flammable liquids, the major manufacturing chemical company of the products should be contacted for information on reactivity with other materials or conditions.

Extinguishment

Fire extinguishing is an important factor to be considered in handling any flammable liquids. Of course, the method of extinguishment will vary in proportion to the anticipated size of the fire as well as the type of flammable liquid. Portable extinguishers, hose lines and fixed systems are available for use in extinguishment. In some cases extinguishment may be difficult, if not impossible, to accomplish and, therefore, all that can be done is to prevent the fire from spreading. In general, when flammable liquids are handled indoors, the buildings should be equipped with automatic sprinkler systems.

In a publication entitled "Properties of Flammable Liquids, Gases and Solids" (National Fire Protection Association No. 325), there is available information on the characteristics of materials, including the recommended extinguishing agents for over 650 materials. Another publication of the NFPA which should be of assistance to many safety people is the "Flammable Liquid Trade Name Index" (NFPA No. 325A). This latter publication lists the flash point, principal uses and manufacturers of approximately 3,600 trade name flammable liquid products.

Storage Tanks

After an understanding is gained of the character of any flammable liquid, the first problem is: How should the material be stored? Depending on the quantity needed, the flammable liquids may be stored in tanks located aboveground, underground or in buildings, in drums or in small containers up to five gallons in size.

Vertical aboveground tanks may be cone or dome roofed, a lifter roof, floating roof, sphere, spheroid and variations of these types. The cone roofed tank is the most widely used type of vertical storage tank although the other tanks are becoming more widely used, particularly for vapor conservation purposes.

It is extremely important that standards on tank construction be adhered to faithfully. The American Petroleum Institute, Underwriters' Laboratories Inc. and the NFPA Flammable Liquids Code supply details for con-

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1. *Available from the Manufacturing Chemists' Association, 1625 Eye Street, N. W., Washington 6, D. C.*
2. *The relatively safe product involved was a mixture of ortho dichlorobenzene, propylene dichloride and ethylene dichloride. The aluminum tank in which it was stored previously had been used for storing fatty acid, after which it was steam cleaned. However, the vent unfortunately still was plugged with fat and the fat contained water. It was the mixture of the water with the "safe" product, reacting with the aluminum of the tank, which caused a reaction, thus overpressuring the tank because of the plugged vent.*

struction of various types of tanks. The venting of all tanks, not only for normal breathing but particularly for emergency fire exposure conditions, should be considered in the design. Cone roofed tanks are required to have the seam where the roof joins the shell of the tank designed to fail before the same seam at the bottom of the tank. Such a weakened-seam roof construction allows the roof to fail before the bottom in order to relieve safely pressure generated from an internal explosion or overpressure caused by fire exposure. Vents on all pressure tanks should be directed in a manner which will prevent localized overheating of the tank shell in case there should be a ground fire around the tank which would pressurize the tank and ignite the vent. In a fire in recent years, 18 firemen lost their lives when a pressure type storage tank ruptured violently due to flame impinging on the shell.

Properly designed tanks have an excellent fire record because they resist fire exposure. For example, if the contents of a cone roofed tank are ignited, the shell of the tank above the liquid level folds into the tank (due to softening of the steel caused by the heat of the fire). This action is progressive as the liquid level goes down, and there is no rupture of the shell as some people are inclined to believe.

The contents of a tank are important to consider in evaluating the degree of hazard. With gasoline, for example, the vapor space above the liquid level normally is too rich to burn and, with kerosene or fuel oils, the vapor space is too lean to burn even in the hottest parts of the United States. However, for those liquids whose flash points are in the range of normal summer temperatures, the vapor space above the liquid in the tank normally will contain vapors in the flammable range. On tanks containing these latter-type liquids, flame arresters have their most important application. But condensation, corrosiveness and crystallization of certain products and freezing in winter may make conservation vents, and particularly flame arresters, impractical. Flammable liquids whose flash points are below 70° F. (closed cup test) are required, where practical, to have the tanks equipped either with approved flame arresters or with venting devices which normally shall be closed when not under pressure or vacuum.

Aboveground horizontal tanks should rest on supports of concrete, masonry or steel. Exposed steel supports must be protected by fire resistive materials to provide a fire resistance rating of not less than two hours. The fire record proves the hazards of unprotected steel supports which, unfortunately, are used rather widely. Under fire exposure conditions the unprotected steel supports will fail in approximately five minutes, allowing the tank to drop to the ground. As the tank fails, piping is broken or the tank ruptures, spilling the contents and in some cases resulting in an explosion.

Of concern is the spread of fire to adjacent property or waterways when flammable liquids are stored aboveground. To prevent such fire spread, the most desirable method is to slope or drain the area around tanks to an impounding basin away from the tanks and buildings on adjacent property. If this drainage to a safe location is impractical, then it may be necessary to provide dikes around the tanks. Current NFPA Standards call for the impounding basin or diked area to have a net aggregate capacity of the largest tank and an additional safety factor of ten per cent of the capacity of the remaining tanks involved.

Aboveground tanks should have only steel valves and steel piping. (Cast iron, bronze and brass valves fail under fire exposure, resulting in the release of the tank contents.) The only exceptions are for those flammable liquids which are incompatible with steel, or for certain specific applications. When material other than steel must be used, the user should recognize the possibility of the release of liquid caused by an exposure fire.

Underground flammable liquid tanks are the safest type of storage. Although vent fires occasionally occur, the record would indicate that flame does not propagate into the tank. The vapor pressure of the majority of the products stored, as well as the pipe size of the vent, are probable reasons for this excellent record. However, an increasing problem in the use of underground tanks is their susceptibility to corrosion. Leaks from underground tanks have appeared in basements of buildings more than a mile from the tanks.

Proper installation of the tank—in clean sand or earth —certainly will mitigate the underground tank leakage problem. Care should be exercised to prevent damage to the protective coatings. As a preventive measure, tanks should be air tested before installing them underground and again after the installation is complete. The latter test also should include all piping.

Close inventory control should prevent tank leakages

Burning fuel released from drums of flammable liquids caused severe building damage.

Damage to a large chemical plant was caused by an uncontrolled chemical reaction taking place in a tank car of acrolein. The tank car was located on the tracks immediately in front of the spheres in the center of the picture.

from becoming serious. The possibility of liability to a company which allows ground contamination with flammable liquids certainly indicates the need for top management concern for adequate control and test procedures. Any time a tank is suspected of leaking, it can be tested quite simply. The most widely accepted method is to apply a hydrostatic test utilizing the liquid which the tank normally will hold. Procedures for conducting this type of test are being developed by an NFPA committee and should be available shortly.

Inside buildings, storage tanks of flammable liquids are generally restricted. However, regardless of the type of storage tank or liquid stored, the tanks should be equipped with fill and vent lines which terminate in a safe location outside the building. Supply tanks for oil burning equipment are given separate treatment in "Standards for Oil Burning Equipment" (NFPA No. 31).

Container Storage

The most hazardous type of flammable liquid storage, as the fire record proves, is container storage of flammable liquids. The hazard is not so much in the flammable liquids being the source of ignition, as it is in the containers being exposed to fire which has originated from another source. This exposure to fire causes the containers to overpressure and rupture, releasing the contents. The missile hazard of the ruptured containers, plus the intense heat, prevents effective fire fighting and will overtax all but the best designed of sprinkler systems. Fire tests have proved that volatile flammable liquids in drums should not be stored more than two drums high or, in other containers, should not be stored more than six feet high. This height limitation is based upon storage in buildings equipped with sprinkler systems, or equivalent protection, and the ability of these systems to control fires. In unprotected buildings, storage should be limited to three feet in height or one drum. Flammable liquids in containers should not be stored in the basement of a building, the only exception being for flammable liquids with a flash point above 70° F. in basements protected by automatic sprinkler systems or equivalent. Even liquids with a high flash point, such as lubricating oil, have been the direct cause of an entire building's being destroyed when the containers were exposed to fire.

Containers for flammable liquids must be strong to withstand the rigors of shipping. However, this design strength, necessary to prevent leakage, increases the violence of any container rupture. Also, the possibility of container leakage makes it important to limit the width of a storage pile. Here again, factors of protection and class of liquid affect the storage. In unprotected buildings the width of piles should be limited to four feet for liquids with a flash point under 70° F., with increasing width for less volatile liquids and protected buildings. Additional details of container storage, both inside and outside of buildings, may be found in Chapter III of the NFPA Flammable Liquids Code.

Handling

Certainly the preferred method for handling flammable liquids is in an enclosed piping system. The preferred method for transferring flammable liquids is by means of pumps. However, for some processes gravity feed is necessary and, where used, special precautions should be taken. All piping should be of steel unless the character of the liquid requires other material. In some cases steel pipe is lined with special material to protect the steel against corrosion. Also, the type of pipe used will depend on the pressures necessary. For example, for pressures above 300 psig, only pipe and fittings of ratings specified in American Standards Association Standard B31.1, "Code for Pressure Piping," should be used.

Preferably, tanks and pumps should be outside buildings with the pumps in the open. Similarly, as much of the piping as possible should be outside buildings. Whether the piping is outside or inside a building, it

should be protected against physical damage. In all flammable liquid piping systems consideration must be given, in selecting the type of piping and fittings, to the possible damage which could be caused by fire. In large installations it is common to provide water spray or automatic sprinkler protection for pump houses or pits and for areas of large concentrations of piping. By the same token, sufficient valves—automatic or manual—should be provided to control the flow of liquid for normal operating procedures as well as for emergency conditions.

Piping systems also should be designed to take care of normal expansion and contraction in the systems. Special types of flexible hose connectors are available for use where dangerous stresses may develop in piping due to vibration or where piping is attached to moving equipment.

In handling small quantities of flammable liquids, the use of small containers usually is desirable. Frequently the liquid is stored in drums and dispensed into smaller containers as needed. (Such storage and dispensing should be in rooms cut off from the rest of the building by fire resistive walls. Approved electrical wiring and equipment for Class I Division I Hazardous Locations should be installed. Adequate normal or mechanical ventilation is necessary to prevent accumulations of flammable vapors.) Preferred method for dispensing is by means of a device which draws the liquids from the top of the tank or container. Drum faucets, if used, should be recognized as a potential hazard due to the possibility of leakage. Factory Mutual Laboratories in Norwood, Massachusetts, lists drum faucets and, if such devices are used, only those listed by this or some other nationally recognized laboratory should be used.

For handling of flammable liquids in containers smaller than drums, only approved safety cans of not more than five gallons capacity, having a springclosing lid and cover, should be used. When dispensing from one container to another the operator should have containers connected electrically to prevent static discharge. This connection may be made by means of a bonding wire or by having the container rest on a metallic floor plate which is electrically connected to the fill stem.

It frequently is necessary to store small quantities of flammable liquids in their original sealed containers near the point of use. These small containers will vary in size up to five gallons. For such storage and use, storage cabinets of 50 gallon capacity are available. For those who wish to build their own cabinets, the construction details are given in the NFPA Flammable Liquids Code. Since small quantities of flammable liquids are being widely used in a variety of industries, use of approved safety cans and storage cabinets has become important to the overall safety program. Case histories show that if misused or improperly handled, comparatively small quantities of flammable liquids can be very hazardous.

Use

It is a safety man's responsibility to see that employes using flammable liquids have an understanding of the hazards and a knowledge of proper safety precautions. This employe education plus the rigid enforcement of reasonable company rules governing use of flammable liquids will go a long way toward preventing fires. The safety engineer should study the procedures followed in using a flammable liquid, giving consideration to the characteristics of the liquid. Ventilation should be provided, of course, for volatile liquids where the vapors can spread into the room.

In reviewing the use of flammable liquids in a plant, the safety engineer should study carefully the possibility of using safer liquids. There now are a large number of liquids, specially developed for various purposes,

Uncontrolled chemical reaction resulted in overpressuring the small storage tank of flammable liquids. Ten firemen were killed by toxic vapors and flying fragments of the tank.

which provide far greater safety than materials previously used for similar purposes.

Principal objections to using some of these safer materials, particularly for the cleaning of parts, are that the safer products do not dry rapidly or that they leave a film on the object being cleaned. Liquids used in cleaning, in order to dry rapidly, usually either are highly volatile (low flash point) or are nonflammable but highly toxic. For this reason it is important to educate plant users on the need for using the less volatile but safer materials.

Even with many of these safer solvents there still remains a fire problem. The majority are made with flash points about 100° F. and are reasonably safe for normal usage, for the liquid or the vapors must be heated to flash point before ignition can take place. Even with these higher flash point solvents, however, it is necessary to be alert for potential sources of heat. Unfortunately, some people have the impression that when high flash point solvents are used all hazard is removed.

In one case of fire in a small plant, the owner was very conscious of fire hazards and was a meticulous housekeeper. One afternoon, using five gallons of a solvent with a flash point of approximately 105° F., he cleaned grease and oils from a considerable amount of piping and equipment. This plant was located in the southwestern part of the United States and it was summer. Temperature inside the building was approximately 115°. All the ingredients were there for a fire and apparently a spark from a worn electrical cord provided the source of ignition. The man lost his life and the building was destroyed. Although this plant owner was noted for being fire prevention conscious and for keeping his plant clean, he overlooked one simple fact: *any flammable liquid when heated to its flash point can be ignited almost as easily as gasoline.*

A higher flash point flammable liquid should always be used, if possible, in place of a liquid whose flash point is below normal room temperature. But it is important to remember that, even with the higher flash point materials, not all the hazard is removed.

Another example of recent development of safe liquids for use in place of flammable or combustible liquids is in the field of hydraulic fluids. Many plants have been destroyed when a high pressure hydraulic line has broken, spraying the fluid over the room. Due to the fine misting of the fluid, it is easily ignited, with a resulting serious fire. The new type hydraulic fluid has eliminated this hazard. (With some types of these new so called nonflammable hydraulic fluids it may be necessary to change the type of packing, sealing compounds or paints.)

Special Hazards

In many industrial processes it is necessary to heat a material. Here again the hazards of raising the temperature of a normally safe material to its flash point become of vital concern. In addition, for many of these materials a new factor, ignition temperature, may be brought into consideration. In many processes the materials must be heated above their flash points. Due precautions will prevent a flammable vapor-air mixture from reaching an outside source of ignition. However, if the product is heated higher, to its ignition temperature, the material will ignite spontaneously. Many materials, solids at normal temperatures, become liquid when heated and must be treated accordingly.

Automatic temperature limit controls definitely should be used for flammable liquids. If at all possible, these controls should be set to shut off heat at a temperature below the flash point of the liquid. In other cases where it is imperative to go above the flash point, the controls should be set below the ignition temperature of the liquid. Some liquids, when heated, will detonate or start an uncontrolled chemical reaction before ignition temperature is reached and so controls must of course be set to prevent this reaction. Fail safe controls are preferable, naturally. In many processes requiring temperature limit controls, temperature alarms also are provided to alert plant personnel.

Currently industry is developing many new and improved materials, the manufacture of which often calls for elevated temperatures and pressures. Failure to provide sufficient and adequate controls for many of these processes has resulted in tragic explosions, fires and pressure ruptures. A full discussion of the problem is outside the scope of this article. However, every process calling for elevated temperatures and pressures should be carefully evaluated by the engineering staff of the company. From the many case histories of such fires and explosions it would appear that insufficient thought is being given to the problem. For example, the key lesson to be derived from an analysis of the fire record is what effect the failure of any one control would have on the entire process as well as on other controls.

It is apparent that a fire protection engineer would need to review the above factors very carefully. Also to be remembered is the effect on the characteristics of flammable liquids by these elevated temperatures and pressures. Among other effects, the flammable range of the products will widen. Another important factor to consider is the establishment of safe procedures during start up and shut down of such process equipment. Since the product probably is at its flash point and an ignition source may be present, it will be necessary to eliminate the oxygen, by displacing the air with inert gas, to prevent an explosion or fire. Here again, however, rigid control is necessary to make sure that sufficient inert gas is present in the vessel. And even the lines leading to vessels must be considered. For example, in one case the source of ignition, during the start up of a huge pressure vessel, was in the system leading to the vessel. The resulting pressure wave (pressure pile up) caused a detonation of the 2½-inch steelwalled vessel. Even 4-inch thick steelwalled vessels have been known to fragment under detonation conditions.

Spray Painting

Spray painting basically involves two hazards which must be minimized where spraying operations take place. The first hazard is vapor from the solvent in the paint. In part, the degree of hazard depends on the flash point and quantity of the solvent used. The second hazard is the accumulation of spray residue. The type of paint or lacquer used will determine the degree of hazard and the susceptibility to spontaneous ignition. Both the hazard of solvent vapors and residue from overspray can be controlled by an adequately designed ventilation system.

In addition to the conventional air atomized spray painting there have been increasing use and development of new methods for the application of paint. These methods include spray liquid heaters, high pressure (airless atomization) and electrostatic apparatus. Details of the precautions necessary for each type of spray finishing process can be found in the "Standard for Spray Finishing Using Flammable Materials" (NFPA No. 33).

Where practical, spraying operations should be conducted in properly designed spray booths. Such spray booths have a wide variety of designs for all types of objects to be sprayed. The waterwash type spray booth extracts the spray residue as it passes through a water curtain. Where drying apparatus is permitted to be used in spray booths, special precautions must be observed to prevent any appreciable heating of the surface of the booth. Hot air heating may be particularly hazardous due to increasing the temperature of over-spray residue, resulting in spontaneous heating or ignition. In addition, an interlocked ventilating system is required to ventilate the drying space before the heating system can be started.

Dip Tanks

Dip tanks are used in a wide variety of applications for the purpose of coating, finishing, treating or similar processes. As with spray finishing, adequate precautions must be taken to eliminate as far as possible any accumulations of flammable vapor-air mixtures by providing ventilation. Also, flammable residues present a problem of possible spontaneous heating. Depending on the size of dip tanks, they should be provided with overflow drains or bottom drains and automatic extinguishing systems. Additional details on this type of dipping operation as well as hardening and tempering tanks, flow coat, electrostatic detearing equipment, roll coating and saturation processes can be found in the "Standards for Dip Tanks Containing Flammable or Combustible Liquids" (NFPA No. 34). As the fire record proves, drain boards from dip tanks must be given much the same consideration as dip tanks themselves.

Hot Work on Tanks and Containers

As a representative of one of the largest companies in the United States has stated, the standard most badly needed by industry has been one on how to clean tanks and containers safely prior to performing hot work. After three years of intensive effort by an NFPA committee, such a standard was adopted in May, 1957, entitled "Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers" (NFPA No. 327). One of the first steps before cleaning is to determine what the container previously has held, so as to prevent the possibility of reaction between the product and the cleaner. Prior to performing hot work it may be necessary to clean the container. Cleaning operations preferably should be done in the open. Vapors may be removed by displacement with water, with air or with inert gas. Another method which may be used to safeguard a container is to inert the vapor space to a point where the oxygen content is substantially at zero during the entire time work is in progress. In order to remove residual solids or liquids, steam or chemical cleaning may be necessary.

Regardless of the method used to safeguard a container prior to performing hot work, it is absolutely imperative that tests for flammable vapors be made (1) before commencing alterations or repairs; (2) immediately after starting any welding, cutting or heating operations; (3) frequently during the course of such work. Failure to follow all three of these steps has resulted in numerous explosions and fires, with death and injury to many people. The American Petroleum Institute publishes procedures for safeguarding large tanks, tank cars and tank vehicles.

Conclusions

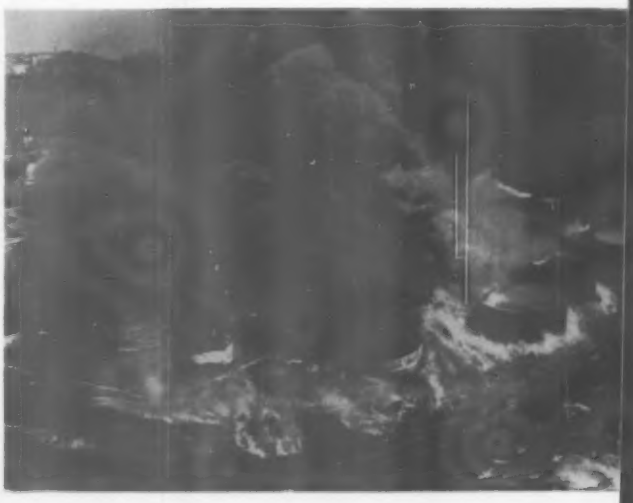
In summary, flammable liquids can be safely stored, handled and used if the characteristics of the liquids are known and standards of good practice are complied with.

The characteristics of flammable liquids will vary the degree of hazard and must be evaluated for each case.

Storage tanks and piping must be designed and installed in accordance with the latest standards, with consideration for fire conditions as well as for normal operating conditions.

Normal or mechanical ventilation should be provided to prevent the accumulation of vapors when flammable liquids are handled or used in buildings.

Fire control or extinguishing equipment should be provided in buildings handling flammable liquids.



More than 80 flammable liquid storage tanks were destroyed in the largest tank farm fire in the history of the United States. Several of these tanks initially were punctured by flying fragments of steel from an explosion in an adjacent processing unit. Despite lack of adequate dikes, fire did not spread to other property.

how valid are statistics on small business?

by A. M. Baltzer

WITHIN the past year, articles in the Journal of the American Society of Safety Engineers have discussed the validity and reliability of statistics involving small and large plants. The subject is not new; hardly a year in the last 20 has gone by without at least one important article or speech on the subject. Why all the interest in injury rates by size of company? Why all the discussion and the time and space devoted to the pros and cons for alleged inconsistencies in reporting in large vs. small plants?

Perhaps all this talk merely has been an oblique approach to proving the point that injury rates vary inversely to the degree of safety activity. Of course, this rather widely held belief then leads to the conclusion that small firms, which generally have less organized safety activities than large firms, have higher injury rates. But such a conclusion cannot be demonstrated validly due to lack of knowledge on the type of "unit" generally referred to in the size breakdowns. There may be a far more important difference between the type of unit and the degree of safety activity *within* any given size bracket than there is *between* the different size brackets.

At the present time, most statistical breakdowns use the term "unit," an at least implied admission that in the lower employe size brackets—for example, the 50-250 employe bracket—there is a mixture of the following groups:

1. Small, independently owned and operated firms—manufacturing plants, loggers, contractors, warehouses, stores, laundries, auto agencies, etc. This group generally has much less organized safety than the following two groups.
2. Chains—groups of small units, often with negligible safety staff.
3. Branch and main plants of a large corporation—with a varying degree of autonomy or decentralization but perhaps with some guidance or central direction by trained safety engineers, doctors and other specialists. (Many corporations have branch plants or units in *every* size bracket.)

How then can the activity of any group in this 50-250 size bracket be gauged by injury rates when the makeup of this mixture, percentage-wise, is unknown!

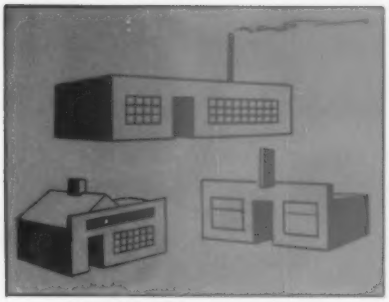
The National Safety Council's Small Business Program is primarily concerned with group number one—the small, independently owned firm, particularly in the high hazard industries—because there are so many of these firms which have not yet been reached and helped by safety agencies. Since no safety agency ever can hope to reach adequately and serve directly a majority of these firms, the Council's approach is to use associations, chambers of commerce, local safety councils and other such "multipliers," which routinely contact and work with several million small firms. This program could be advanced by statistics which would give a true picture of safety activity within any size bracket, i.e., by determining accurate rates for each of groups one, two and three, particularly group number one.

The word "plant" also is used too frequently, thereby unintentionally excluding a very high percentage of firms in the non-manufacturing categories of trade, service, construction, sales and other non-agricultural groups. In so doing, attention is diverted from industries which often have higher injury frequency rates than manufacturing. But these non-manufacturing industries include a very high percentage of small, independent employers. So, why not use a general term, "firm" or "employer," which actually is more descriptive of the so called "small business" than the term "plant."

Weaknesses in Original Reporting

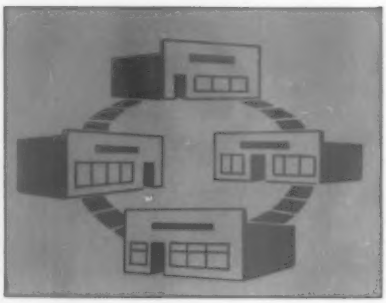
Since no agency knows exactly how many independent firms vs. branch plants contribute to rates in various size breakdowns, it is impossible to determine just how many small, independent firms actually contribute figures

A. M. "Al" Baltzer is director of the Small Business Program, National Safety Council. He has been working on small business safety problems for some 15 years. A graduate mechanical engineer of Washington University, Mr. Baltzer entered safety work in 1936. For the last four years he has served as secretary of the Society's Greater Chicago Chapter.



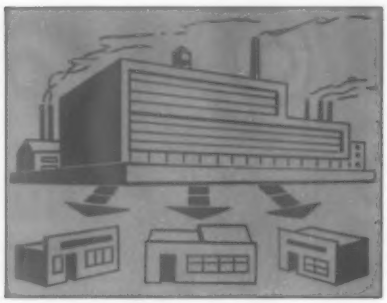
SMALL FIRMS

- Independent plants, stores, etc.
- Owner is "safety man."
- Negligible participation in safety.
- Little, if any, standard reporting.



CHAINS

- All small units, with some degree of central control.
- Perhaps "fair" safety organization.
- Reporting "good" or "fair."



LARGE OR MULTI-PLANT

- Large and small plants.
- Some central control of safety.
- Good participation in safety activities.
- Relatively complete, accurate reporting.

STATISTICS ON SMALL BUSINESS *Continued*

that conform to the American Standards Association's Z16.1. By the process of elimination it would appear that only a very small percentage of small firms do report, and at a uniformly high level of accuracy, for the following reasons:

1. Few statistical agencies require or even encourage standard reporting by a large number of small firms. While more and more insurance companies are stimulating standard reporting, many require figures only on medical and compensation costs (to avoid keeping a double set of records). The same holds true for the state agencies, which usually have better records on compensation cases than on disabling injuries as defined by the ASA Z16.1 Standard.

2. The national agencies depend upon figures voluntarily contributed by industry and, to some extent, those reported by state agencies. The former arrangement requires the cooperation of employers; the response undoubtedly falls off in the category of small, independent firms with little or no knowledge of organized safety or accident reporting. It is estimated that less than five per cent of the more than three million firms in the United States report to any agency. Eliminating the thousands of branch plants and chains leaves an even smaller percentage of small, independent employers to contribute any kind of statistics to state agencies and safety organizations. And it is probable that even those comparatively few small firms that do keep records and report are not typical of the rest.

3. The accuracy of reports varies with the size and type of reporting unit. For example, the companies that report to the National Safety Council generally are the larger firms with professionally trained engineers, statisticians and established reporting systems. The smaller firms, even those that report, usually do not have these advantages and the accuracy of reporting may suffer because the supervisor or employer who makes the report lacks training and experience.

4. There are other complicating factors. Even if a sizable group of small employers understood and remembered the fine points of standard definitions, they still would have to be so completely sold on using the standard method that they would set up the necessary records or train the necessary personnel. If the comparatively small number who got this far were willing and able to report, the time lapse between their disabling injuries would tend to dull their original enthusiasm, and the fine points of reporting would be forgotten. Personnel changes and injuries of a questionable nature and source would further handicap complete and accurate reporting in the smaller firms.

5. Doctors' opinions, which are so important, may not always be completely reliable because many general practitioners, who usually serve small firms, have never heard of Z16.1. Even an industrial clinic, which may be serving a group of smaller firms, may not always apply the definition of "temporary total disability" as correctly as the industrial physician in the large plant. Hence, there very well could be a breakdown of reporting on the part of a doctor who comparatively infrequently has occasion to complete an injury report form.

The purpose of this article is not to detract from the importance of clarifying the Z16.1 Standard. Large numbers of employers, with a tremendous number of employes, *are* keeping records based on the standard; anything that will eliminate confusion and promote better reporting, with less criticism of the other fellow's "laxity," is highly desirable.

However, attention also should be called to greater possible errors arising from too casual use of the term "small plant," particularly when the degree of safety activity is to be gauged by injury rates based upon size of units. Only when the term "plant" or "unit" is carefully defined will there be any significance to such injury frequency rates. Because of these weaknesses in the reporting procedure and because of the mixture of "firms" and "plants" in any given size bracket, the validity of our statistics, particularly on small vs. large units, is open to question.

national committees

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AMERICAN SOCIETY OF SAFETY ENGINEERS

Membership Information

THE American Society of Safety Engineers has established the following classifications of active membership.

MEMBER — To be eligible as a Member an applicant shall be at least thirty years of age and shall be engaged in safety engineering. In addition, he shall have either an engineering or science degree in an accredited college curriculum and the equivalent of eight full years' experience in safety engineering; or he shall have had the equivalent of ten full years' experience in safety engineering.

ASSOCIATE MEMBER — To be eligible as an Associate Member an applicant shall be at least twenty-five years of age and shall be engaged in safety engineering. In addition, he shall have either an engineering or science degree in an accredited college curriculum and the equivalent of three full years' experience in safety engineering; or he shall have the equivalent of five full years' experience in safety engineering; or he shall have either an engineering or science degree in an accredited college curriculum, ten years' experience in professional engineering work and one full year's experience in safety engineering; or he shall have twenty years' experience in engineering work, of which at least ten have been at the professional level, and one full year's experience in safety engineering.

JUNIOR MEMBER — To be eligible as a Junior Member an applicant shall be at least twenty years of age and shall be engaged in safety engineering work, which if pursued the required time will tend to qualify the applicant for the classification of Associate Member. In addition, he shall have either an engineering or science degree in an accredited college curriculum or he shall have had the equivalent of one full year's experience in safety engineering.

AFFILIATE MEMBER — The Society also provides a special classification, that of Affiliate Member, for those not professionally engaged in safety engineering. To be eligible as an Affiliate Member an applicant shall be at least twenty-five years of age and shall have contributed to the advancement of safety engineering through demonstrated achievement in some related field of interest in which he has been engaged for at least three years.

for additional information write to

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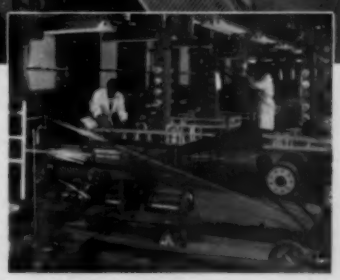
● **How COLOR DYNAMICS has helped** to improve efficiency and morale in the Hitemp plant is best told in the words of George F. Rolfe, president: "About a year ago, our rapid growth required the leasing of temporary space. This presented an opportunity to try COLOR DYNAMICS. The results in efficiency, morale and safety for our workers proved so successful, we decided to adopt this painting system as standard throughout our new plant which was especially designed for our kind of production.

● **"Walls, ceilings and every piece** of machinery and equipment were painted according to this system. Moving into this new, efficiently designed structure has improved both volume and quality. While we believe the new facilities have contributed to this betterment, COLOR DYNAMICS has also proved to be an important factor.



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"I am convinced that every bit of effort we put into Savings Bond promotion as part of a broad thrift plan will be richly rewarded in the contribution we shall be making to the strength and security of our country in this critical period."

How Far Have We Come?

—From page 31

The decreases in injury rates were:

All workers	12%
Construction	16%
Manufacturing	19%
Mining	34%

Figure 5. This figure represents trends in organized safety during the ten-year period. The increase in sales of occupational safety materials (83 per cent) as compared with the 26 per cent growth in employer memberships in the National Safety Council indicates that the employing firms are using a greater volume of training materials, posters, booklets, and technical safety information in each succeeding year. A third curve shows the growth of membership in the American Society of Safety Engineers—a gain of 79 per cent. The fourth is the estimated growth in sales of industrial safety equipment.

The trends in all curves which we have discussed, but especially those in Figure 4, give us cause to believe that the efforts of all who are dedicated to the cause of occupational accident prevention are doing some good. A word of caution is in order, however. Even though much progress has been achieved, there is no reason for complacency. The 9,400 deaths and the 1,455,000 disabling injuries due to occupational accidents which occurred in 1957 are an indication of the magnitude of the task which still confronts us. Possibly the curves in Figure 5, which are some of the indices of organized safety efforts, are the key to the further solution of this problem. Undoubtedly there are some occupational areas where organization to reduce accidents can be greatly strengthened—where greater efforts to protect all workers from injury and death must be accelerated.

Problems of the Future

Our estimate for the next decade is that more and better organized safety programs will be required. The Bureau of Labor Statistics has projected a 10½ million increase in the work force between 1955 and 1965. The composition of this group of new workers will be quite different from our present force, so new problems of training will be introduced.

Because safety is good business—for both humanitarian and economic reasons—constant strengthening of organized safety efforts must occur. While this is true in good economic periods, it is especially true during business recessions. Safety does not cost money—it saves money for both employer and employee—and the wise businessman will improve, rather than curtail, his safety programs during periods of economic stress. Employment is now somewhat lower than it has been. If safety programs are allowed to relax and records are allowed to become worse, the lost ground must be regained at the time of a great influx of new workers—the worst possible time.

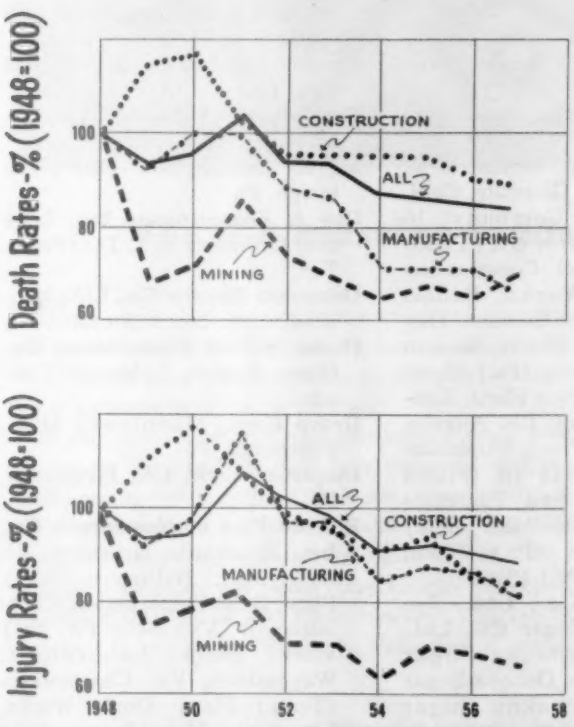
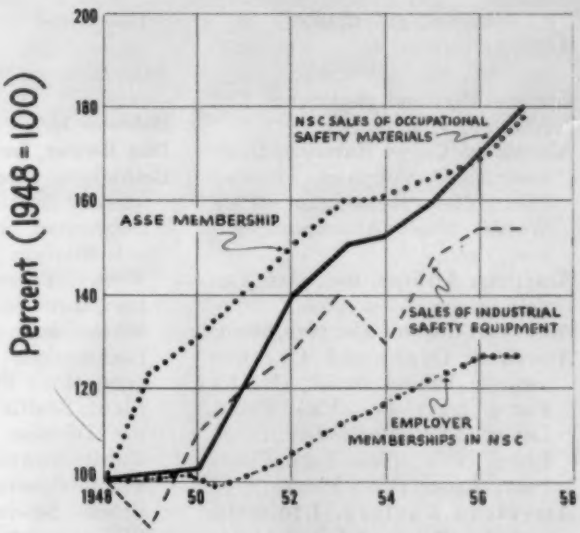


Figure 4. This figure indicates the trends in the death rates and injury rates over a ten-year period using the 1948 rates as a base.



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Winners of National Safety Council Awards for outstanding records

FOUR TYPES of awards are given by the National Safety Council to industrial members in recognition of outstanding performance in accident prevention:

1. **THE AWARD OF HONOR** is available (a) to units which complete 3,000,000 man-hours without a disabling injury, and (b) to units whose records, though not perfect, meet vigorous standards of excellence. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency rate and severity rate.

2. **THE AWARD OF MERIT** has similar, but less exacting requirements. Minimum number of injury-free man-hours needed to qualify is 1,000,000.

3. **THE CERTIFICATE OF COMMENDATION** is available only for injury-free records covering a period of one or more full calendar years and totaling 200,000 to 1,000,000 man-hours.

4. **THE PRESIDENT'S LETTER** is available for injury-free records covering a period of one or more full calendar years and totaling less than 200,000 man-hours.

Details of eligibility requirements may be obtained by writing to the Statistics Division, National Safety Council.

AWARD OF HONOR

ACF Industries, Inc., Albuquerque (N. Mex.) Plant.

Algoma Plywood & Veneer Co., Algoma, Wis.

Aluminum Co. of America, three awards: Davenport (Iowa) Plant; New Kensington (Pa.) Works; Sheet Aluminum, Alcoa, Tenn.

American Airlines, Inc., Base Repair Shops, Tulsa, Okla.

American Chrome Co., Nye, Mont.

American Cyanamid Co., five awards: Bound Brook (N. J.) Plant; Latrobe (Pa.) Plant; Lederle Laboratories Div., Pearl River, N. Y.; New York Plant; Piney River (Va.) Plant.

American Factors, Ltd., six awards: Consolidated Terminals, Lihue, Kauai T. H.; Kekaha Sugar Co., Kekaha, Kauai; Oahu Sugar Co., Waipahu; Olaa Sugar Co., Olaa; Lihue Plantation Co., Lihue, Kauai; Pioneer Mill Co., Lahaina, Maui.

American Radiator & Standard Sanitary Corp., two awards: Louisville (Ky.) Works; Torrance (Calif.) Plant.

Atlanta Stove Works, Inc., Atlanta, Ga.

Baldwin Hill Co., Trenton, N. J.

Don Baxter, Inc., Glendale, Calif.

Bethlehem Steel Company, 16 awards: Bethlehem (Pa.) Plant; Fabricated Steel Construction —Bethlehem Works; Buffalo Works; Eastern Erection District; Leetsdale Works; Rankin Works; Johnstown (Pa.) Plant; Lackawanna (Pa.) Plant; Lebanon (Pa.) Plant; Los Angeles Plant; Seattle Plant; Shipbuilding Division, Staten Island Yard; South San Francisco Plant; Sparrows Point (Md.) Plant; Steelton (Pa.) Plant; Williamsport (Pa.) Plant.

C. Brewer & Co., Ltd., five awards: Hilo Sugar Co., Ltd., Hilo, T. H.; Kilauea Sugar Plantation, Hilo; Ononea Sugar Co., Ononea; Paakau Sugar Plantation Co., Hilo; Pepeekeo Sugar Co., Pepeekeo.

British Columbia Forest Products, Ltd., Victoria Plywood Div., Victoria, B. C., Canada.

Campbell Soup Co., Camden, N. J.

Canadian Industries, Ltd., two awards: Nobel Works, Nobel, Ont., Canada; York Works, Toronto, Ont., Canada.

Panama Canal Co., two awards: Balboa Heights, C. Z.; Transportation and Terminals Bureau.

Carrier Corp., three awards: Day and Night Mfg. Co., La Puente, Calif.; Tyler Plant, Bryant Div., Syracuse, N. Y.; West Coast Div. Headquarters, La Puente, Calif.

Caterpillar Tractor Co., East Peoria, Ill.

Celotex Corp., Fiber Insulation Board Plant, Marrero, La.

Chemstrand Corp., Nylon Yarn Plant, Pensacola, Fla.

Chesapeake Corp. of Va., West Point, Va.

Chicago Dept. of Public Works, Div. of Highways, Chicago, Ill.

Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div., Buffalo, N. Y.

Columbia Gas System, Inc., Charleston Group, Charleston, W. Va.

Consolidated Mining and Smelting Co. of Canada, Ltd., Blue Bell Mine, Riondel, B. C., Canada.

Crossett Lumber Co. & Affiliated Cos., Crossett, Ark.

Crucible Steel Co. of America, Midland, Pa.

M. E. Cunningham Co., Pittsburgh, Pa.

Day & Zimmermann, Inc., Lone Star Ordnance Div., Texarkana, Tex.

Demerara Bauxite Co., Ltd., British Guiana, South America.

Drake Merritt Construction Co., Goose Airport, Labrador, Canada.

Dravo Corp., Machinery Div., Pittsburgh, Pa.

Duquesne Light Co., Pittsburgh, Pa.

E. I. du Pont de Nemours & Co., Inc., 25 awards: Arlington (N. J.) Plant; Baltimore (Md.) Plant; Belle Construction, Charleston, W. Va.; Belle (W. Va.) Works; Benger Laboratory, Waynesboro, Va.; Chattanooga (Tenn.) Plant; Doyle Works, Leominster, Mass.; Eastern Laboratory, Gibbstown, N. J.; Edge Moor (Del.) Plant; Elastomers

For the massive loads, braided slings are best

Here's a type of lift requiring the strength and flexibility of large braided slings. The load is a massive steel forging weighing many tons, and anything so heavy and cumbersome needs the most careful handling.

In this case, Bethlehem eight-part-braided slings were chosen for the job. Note their large diameters; note the husky loops. Yet in spite of their size, slings like these are easy to handle, and always flexible. Only a flexible sling could hug the contours of the load so well.

Braided slings are one of the many varieties Bethlehem offers, and there are no finer made anywhere. They can be furnished in any size or length you want. And of course, if you require other types of slings, Bethlehem can furnish them too. We make an almost unlimited range of single-part models, grommets, and bridles, as well as slings of special design.

When we can assist you in working out lifting problems, by all means call for a Bethlehem engineer. You'll find that he talks your language and is thoroughly familiar with shop practice. His services are yours, without obligation, for as long as you need him.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

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Laboratory, Wilmington, Del.; Engineering Research Laboratory, Wilmington, Del.; Grasselli Research Laboratory, Wilmington, Del.; Houston Works, El Porte, Texas; Mechanical Development Laboratory, Wilmington, Del.; Newark (N. J.) Plant; Newburgh (N. Y.) Plant; Old Hickory Cellophane Plant, Old Hickory, Tenn.; Parlin (N. J.) Finishes Plant; Philadelphia Finishes Plant; Seaford Plant, Wilmington, Del.; Spruance Cellophane Plant, Richmond, Va.; Technical Laboratory, Deepwater Point, N. J.; Textile Industrial Products Research Laboratory, Newport, Del.; Toledo (Ohio) Finishes Plant; Yerkes Plant, Buffalo, N. Y.

East Bay Municipal Utility District, Oakland, Calif.

Eastern Idaho Construction Co., Inc., Scoville, Idaho.

Eaton Mfg. Co., Reliance Div. 2, Massillon, Ohio.

Firestone Tire and Rubber Co., three awards: Guided Missile Div., Los Angeles; Pottstown (Pa.) Plant; Textile Mill, Sao Paulo, Brazil.

Ford Motor Co., three awards: Cleveland (Ohio) Stamping Plant; Dearborn (Mich.) Stamping Plant; St. Louis Plant, Robertson, Mo.

Formica Corp., Cincinnati, Ohio.

Fort Orange Paper Co., Paper Mill, Castleton-On-Hudson, N. Y.

General Electric Co., two awards: Lamp Wire 7 Phosp. Dept., Cleveland (Ohio) Wire Plant; Trumbull Lamp Works, Warren, Ohio.

Goodyear Tire and Rubber Co., three awards: Argentina Plant; Lima, Peru Plant; Mexico Plant.

A. P. Green Fire Brick Co., Mexico, Mo.

U. S. Hoffman Machinery Corp., Scranton Ordnance Plant, Scranton, Pa.

International Business Machine Corp., Plant 2, Poughkeepsie, N. Y.

International Minerals & Chemical Corp., Potash Div., Carlsbad, N. Mex.

International Paper Co., two awards: Canadian International Paper Co., Gatineau, P. Q., Canada; Natchez (Miss.) Mill.

Kennecott Copper Corp., Utah Copper Div., New York, N. Y.

Kimberly Clark Corp., Neenah (Wis.) Mill.

Samuel M. Langston Co., Camden, N. J.

Lufkin Foundry & Machine Co., Welding & Structural Div., Lufkin, Tex.

Manning Maxwell & Moore, Inc., Stratford (Conn.) Plant.

The Mead Corp., Chillicothe, Ohio.

Miller Brewing Co., Milwaukee, Wis.

Mosinee Paper Mills Co., Mosinee, Wis.

McCloud River Lumber Co., Lumber Mfg. Sawmill, McCloud, Calif.

National Lead Co., Inc., Monticello, Utah.

National Portland Cement Co., Bethlehem, Pa.

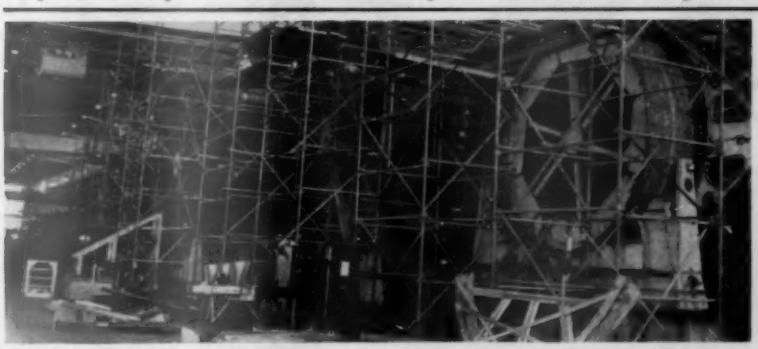
North American Cyanamid Co., Welland Plant, Niagara Falls, Ont., Canada.

Northwest Airlines, Base Repair Shops, St. Paul, Minn.

Olin Mathieson Chemical Corp.,

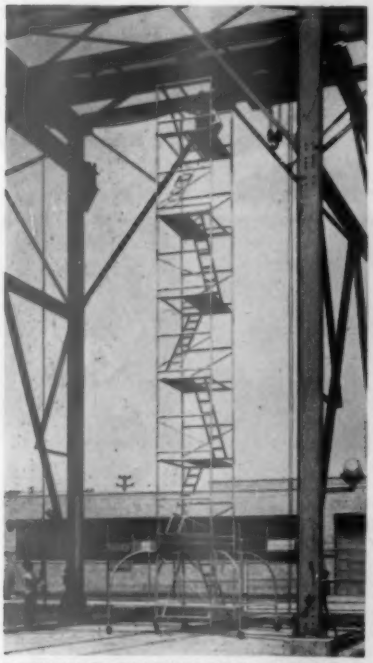
Safe Maintenance Methods

A picture report on efficient ways to scaffold . . . by The Patent Scaffolding Co., Inc.



INDUSTRIAL SCAFFOLDING—During construction of hull sections for new atom subs at the Mare Island Naval Shipyard, "TubeLox"® Scaffolding helps workmen get safely around the curved shapes. Made with only four basic parts, this scaffolding is erected rapidly to conform to almost any shape, size or contour and on any terrain, if exterior work is considered. Adjustable couplers and a variety of tube lengths permit unlimited scaffold placement.

PAINTER'S HELPER—"Trouble Saver"® Sectional Rolling Scaffold with 12"-wide Featherweight Stages gives Gombert Bros., an easily moved, safe painting scaffold at the North Belmore (N.Y.) Elementary School.



ROLLING ALUMINUM TOWER—To repair a crane at the Public Service Electric & Gas Co., Bergen County Switching Station, N. J., a Model B Aluminum Sectional Rolling Scaffold is used. Four outrigger supports increase base area to 10'x10' for greater stability at extreme heights. Five 6'-high sections atop the 6'9½"-high base bring workmen safely up 36'-9½" under the crane mechanism.

REFINERY WORK—At the Tidewater Oil Co., Wilmington, Del., 3500 "Trouble Saver" Scaffolding frames and 15 miles of "TubeLox" Scaffolding are used by C. F. Braun & Co., contractor, to get strong, level, safety-assured working plattorms on refinery's varied structures.

LIGHT-DUTY SCAFFOLDS—Designed for light-duty work, "Gold Medal" Junior Safety Swinging Scaffolds provide extra-safe, quick working levels on tanks, buildings and other structures. Suspended from above by 5/16" galvanized steel cable, these scaffolds have 28"-wide plattorms with double, steel-reinforced side-rails; hinged toe-boards; and 16', 18', 20', 22', 24'-lengths.

"GOLD MEDAL"®—Safety Platform Step Ladders. Broad working platforms. Top quality construction. U.L. approved. Sizes: (total height) 5' to 20'.

NEW STEP LADDER—Aluminum Safety Platform Step Ladder with non-slip safety platform and steps. Strong, lightweight. Heights 5' to 14'. Other aluminum models include: Extension Ladders, 16' to 40'; Heavy Duty Step Ladders, 4' to 14'; Platform Step Ladders, 5' to 14'; and Single Ladders, 8' to 20'.

Write for free copy of "Controlling Costs", Bulletin G205R. Also, see the Yellow pages of your 'phone directory for the nearest Patent Scaffolding Co. office or representative that *sells* or *rents* "Gold Medal" Scaffolds.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

THE PATENT SCAFFOLDING CO., Inc.

38-21 12th Street Dept. N5N Long Island City 1, N. Y.

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Forest Products Div., West Monroe, La.

Pan American World Airways, Base Repair Shops, San Francisco, Calif.

Penn Controls, Inc., Goshen, Ind.

Pickands Mather & Co., Vernona Mining Co., Buck Mine, Caspian, Mich.

Pillsbury Mills, Inc., Louisville, Ky.

Pittsburgh & Conneaut Dock Co., Conneaut, Ohio.

H. C. Price Co., two awards: Spread 4; Spread 5; Bartlesville, Okla.

Procter & Gamble Co., Manufacturing, Administration & Research, Ivorydale, Ohio.

Reserve Mining Co., Silver Bay, Minn.

Fred Rueping Leather Co., Fond Du Lac, Wis.

Sandia Corp., Albuquerque, N. Mex.

Scaife Co., Oakmont, Pa.

Standard Oil Co., two awards: Marketing, Cleveland, Ohio; Whiting (Ind.) Refinery.

St. Louis Public Service Co., St. Louis, Mo.

Sylvania Electric Products, Inc., four awards: Burlington (Iowa) Plant; Electron Tubes Div., Brookville, Pa.; General Engineering, Emporium, Pa.; Receiving Tube Plant, Altoona, Pa.

Tee Pak, Inc., Chicago & Danville, Ill.

Tennessee Copper Co., Milling, Copperhill, Tenn.

Tennessee Valley Authority, two awards: Johnsonville (Tenn.) Steam Plant; Over-all Operation, Chattanooga, Tenn.

Texas Aluminum Co., Inc., Rockwall, Texas.

Transcontinental Gas Pipe Line Corp., Houston, Tex.

Union Carbide Chemicals Co., Cleveland, Ohio.

Union Carbide Corp., three awards: Alloy Works, Electro Metall Co., Alloy, W. Va.; Haynes Stellite Co., Main Plant, Kokomo, Ind.; National Carbon Co.; Greenville, N. C.

United Shoe Machinery Corp., Beverly, Mass.

U. S. Gypsum Co., Gypsum (Ohio) Plant.

U. S. Rubber Co., four awards: Chicopee Falls (Mass.) Plant; Mishawaka (Ind.) Plant; Providence (R. I.) Plant; Total Domestic Plants, New York, N. Y.

U. S. Steel Co., two awards: American Bridge Co., Ambridge (Pa.) Plant; American Steel & Wire Div., Cleveland, Ohio.

Virginia Department of Highways, Richmond, Va.

Western Electric Co., Inc., eight awards: Chicago Distributing House; Philadelphia Distributing House; San Francisco Distributing House; Hawthorne Works, Chicago; Merrimack Valley Works, North Andover, Mass.; New York Distributing House; Syracuse, N. Y. Distributing House; Telephone Sales Div., New York Area.

Westinghouse Electric Corp., two awards: Electronics Div., Friendship Airport, Baltimore, Md.; Micarta Div., Hampton, S. C.

Weyerhaeuser Timber Co., two awards: Logging, Longview, Wash.; Saw Mill, Klamath Falls, Ore.

Casey can't steal a base since the park installed A. W. ALGRIP!

Unfair advantage . . . perhaps, but Casey will never set a new base-stealing record in this park. Now his sliding days are over! A.W. ALGRIP eliminates sliding or slipping wherever used . . . especially where sliding or slipping is never welcome . . . in *your* plant.

A.W. ALGRIP Rolled Steel Floor Plate provides super-safe footing under the most hazardous slipping conditions—on flat or even inclined surfaces.

A.W. ALGRIP Rolled Steel Floor Plate is made by a patented process in which a grinding wheel type abrasive is rolled—*not coated*—to a controlled depth, as an integral part of tough steel plate. Wear merely exposes more abrasive . . . safety lasts for the life of the installation.

Check your plant for slipping hazards and watch Accident Rates and high Insurance Costs "slide." Use A.W. ALGRIP as an independent flooring or as flooring overlay. Send the coupon for A.W. ALGRIP information, today.

ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

ALGRIP—approved for safety by Underwriters' Laboratories

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

Please send A.W. ALGRIP Booklet AL-E27

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

OTHER PRODUCTS:
A.W. SUPER-DIAMOND economy rolled steel floor plate—Plates—Hot and cold rolled sheet and strip—(Alloy and Special Grades)

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COMING EVENTS

in the safety field

May 1-3, Norfolk, Va.
Annual Conference of Virginia Safety Association (Monticello Hotel.) James T. Wadkins, manager, 2501 Monument Ave., Richmond, Va.

May 5-7, Allentown, Bethlehem, Easton, Pa.
Thirty-first Eastern Pennsylvania Safety Conference. Harold E. Seward, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

May 6-8, Buffalo, N. Y.
Eighteenth Western New York Safety Conference and Exhibit (Hotel Statler). Clifford H. Seymour, executive secretary, P.O. Box 315, Niagara Falls, N. Y.

May 7-8, Cedar Rapids, Iowa
Fifth Annual Safety Conference of the Industrial Safety Association of Iowa (Sheraton-Montrose Hotel). Pegge Resch, executive secretary, 611 Central National Bldg., Des Moines, Iowa.

May 8-9, Baltimore, Md.
Governor's Annual Safety-Health Conference and Exhibit (Lord Baltimore Hotel). Joseph A. Haller, executive chairman, Department of Labor and Industry, 12 E. Mulberry St., Baltimore 2, Md.

May 14-16, Asheville, N. C.
Twenty-eighth Annual North Carolina Statewide Industrial Safety Conference (Battery Park Hotel). H. S. Baucom, director of safety, North Carolina Industrial Commission, Raleigh, N. C.

May 19-23, Chicago
Sixty-second Annual Meeting of the National Fire Protection Association (Palmer House). Robert W. Schuette, manager, Public Relations Dept., NFPA, 60 Batterymarch St., Boston 10, Mass.

May 20-21, Louisville, Ky.
Kentuckiana Safety Conference and Exhibit, (Kentucky Hotel). Estel Hack, executive vice-president, Louisville Safety Council, 214 Speed Bldg., Louisville 2, Ky.

May 21, Toronto, Canada
Sixth Conference on Dust Control and Ventilation. Mines Accident Prevention Association of Ontario. (Mining Building, University of Toronto.)

May 21-22, Oklahoma City
Tenth Annual Oklahoma Safety Conference (Skirvin Hotel). Bob Eastman, manager, Oklahoma Safety Council, 1600 N. W. 23rd St., Oklahoma City, Okla.

May 22, Fort Atkinson, Wis.
Thirtieth Annual Rock River Safety Conference of Wisconsin. Kenneth J. Pattow, president, Fort Safety Council, c/of James Mfg. Co., 104 W. Milwaukee Ave., Fort Atkinson, Wis.

May 22-23, Duluth, Minn.
Thirty-fourth Annual Conference of the Lake Superior Mines Safety Council, (Hotel Duluth). Allen D. Look, secretary, 329 Federal Bldg., Duluth 2, Minn.

May 22-23, Toronto, Canada
Annual Meeting of Mines Accident Prevention Association of Ontario (Royal York Hotel). S. W. McIntosh, Canada Permanent Building, 320 Bay St., Toronto 1, Ontario, Canada.

May 29-30, Miami Beach, Fla.
Southern Regional Conference of the President's Committee for Traffic Safety.

June 3, Antigo, Wis.
Wisconsin River Valley regional safety conference. Henry Bannach, Frost Veneer Co., Antigo, Wis.

June 4, Fond du Lac, Wis.
Fox River Valley and Lakeshore Regional Safety Conference. Glen Denker, Damrow Brothers Co., Fond du Lac, Wis.

June 5, Rice Lake, Wis.
Northwest Regional Safety Conference. Wes Burdick, Vocational School, Rice Lake, Wis.

June 9-12, Cleveland, Ohio
Eighth National Materials Handling Exposition (Public Auditorium). Clapp & Poliak, Inc., Exposition Management, 341 Madison Ave., New York.

June 11-12, Bridgeport, Conn.
Thirteenth Annual Connecticut Safety Conference (Stratfield Hotel). A. V. Short, publicity director, 15 King St., Wallingford, Conn.

June 12-14, White Sulphur Springs, W. Va.
Eighty-sixth Annual Meeting, Manufacturing Chemists' Association. (Greenbrier Hotel). Charles E. Wallace, Manufacturing Chemists' Association, Inc., 1625 Eye St., Washington 6, D. C.

June 15-19, Detroit
Semi-annual meeting of The American Society of Mechanical Engineers. L. S. Dennegar, Director of Public Relations, ASME, 29 W. 39th St., New York 18, N. Y.

Aug. 4-5, Denver, Colo.
Women's Seminar for Local Women's Groups (Senate Chambers, State Capitol Building). Colorado Highway Safety Council, Room 14, State Museum Building, Denver 2, Colo.

Sept. 12-14, Glenwood Springs, Colo.
Governor's 1958 Teen-Age Traffic Safety Conference. Colorado Highway Safety Council, Room 14, State Museum Building, Denver 2, Colo.

Sept. 14-19, San Francisco, Calif.
Annual Meeting of American Association of Motor Vehicle Administrators (Fairmount Hotel). AAMVA, 912 Barr Building, Washington 6, D. C.

Sept. 16-18, Cleveland, Ohio
Twentieth Annual Ohio State Safety Conference (Pick-Carter Hotel). H. G. J. Hayes, secretary-treasurer, Ohio State Safety Council, 8 E. Chestnut St., Columbus 15, Ohio.

Sept. 16-20, Copenhagen, Denmark
Fourth International Study Week in Traffic Engineering. World Touring and Automobile Organization, 12 Chesham Pl., London SW1, England.

Sept. 18-19, Rockland, Maine
Thirty-first Annual Maine State Safety Conference (Samoset Hotel). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Maine.

Oct. 12-17, New Orleans, La.
American Transit Association (Roosevelt Hotel). ATA, 292 Madison Ave., New York, N. Y.

Oct. 20-23, Philadelphia
International Municipal Signal Association (Sheraton Hotel). IMSA, 130 W. 42nd St., New York, N. Y.

Oct. 20-24, Chicago
Forty-sixth National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Oct. 26-31, Mexico City, Mexico
Third World Meeting of International Road Federation (Hotel Del Prado and Secretary of Communications Building).

Nov. 3-6, 1958, Philadelphia
Third National Industrial and Building Sanitation Maintenance Show (Convention Hall). Leonard S. Rogers, Orkin Expositions Management, 19 West 44th St., New York 36.

Nov. 10-14, Miami Beach, Fla.
Twenty-eighth Annual Meeting of Institute of Traffic Engineers (Deauville Hotel). David M. Baldwin, executive secretary, 2029 K. St., Washington 6, D. C.

Nov. 28-Dec. 5, San Francisco, Calif.
Annual Meeting of American Association of State Highway Officials (Sheraton-Palace Hotel). AASHO, National Press Building, Washington 4, D. C.

Nov. 30-Dec. 5, New York
American Society of Mechanical Engineers, Annual Meeting. (Statler and Sheraton-McAlpin Hotels). ASME, 29 West 39th St., New York 18.

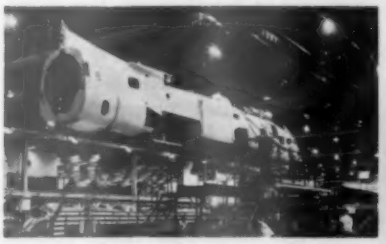
With top speed a secret, the U. S. Navy's Chance Vought F8U-1 Crusader was the first aircraft to span the continent faster than the speed of sound. Now flying with Fleet squadrons on both the Atlantic and Pacific coasts, the F8U-1 operates in a new speed range far beyond the supersonic. President Eisenhower, aboard the Saratoga when one of the epic transcontinental flights landed, observed: "You almost got here before you left."

In the photo above, Tuffy Slings are being used in hoisting the plane. 18,829 lbs. of valuable aircraft are entrusted to the quality, strength and dependability of Tuffy Slings. We think it's a fine testimonial to the kind of slings and wire rope you get when you use Tuffy.

Tuffy Slings give you more sling efficiency and longer life because Tuffy's patented machine-braided fabric is the perfectly balanced combination of strength and flexibility. Their flexibility is such as to resist kinking. When kinks do occur, they are easily straightened without material damage. And the exclusive Tuffy pressed-on ferrule makes the eye-splice as strong as the fabric. For every sling need and any sling problem, get in touch with your Tuffy distributor.

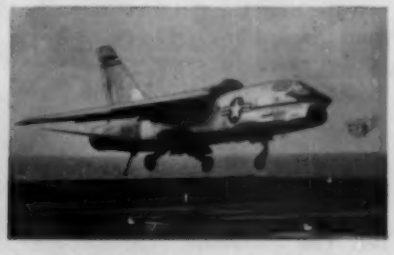
Write today for your copy of
FREE TUFFY SLING HANDBOOK
Full sling data and specifications plus complete rigger's handbook.

union Wire Rope corporation
SUBSIDIARY USS STEEL CORPORATION
2224 Manchester Ave. **Kansas City 26, Missouri**
Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.



Tuffy Slings play a vital part in both production and operation of the Navy's F8U-1. Here the fuselage is suspended on a Tuffy sling assembly as it moves on the production line.

Tuffy is in the act again as the F8U-1 is set to catapult. Union Wire Rope also manufactures catapult slings used on U. S. Navy aircraft carriers.



The F8U-1, landing on carrier deck, is about to catch arresting cables such as Union Wire Rope Corporation also makes for the Navy. The plane in this operation weighs more than 12 tons!

Circle Item No. 37—Reader Service Card

OFF THE JOB

Safety programs for plant and community

By Harry C. Johnson
NSC Staff Representative
OTJ Safety Committee

At the recent President's Conference on Occupational Safety, Workshop C, "Take-home safety" was presented by J. S. Queener of the Du Pont Company as chairman. There were several prominent people on the platform telling of their experiences and beliefs in the off-the-job-safety program. Edward B. Landry, director of safety, United States Post Office Department, was one of those speakers. Mr. Landry's remarks are reprinted here.
H. C. J.

Off-the-job safety programs affect three different but interrelated areas: the community, the employer, and the employee.

Positive and beneficial results can be expected in each of these areas.

The Community. The community is a composite of corporate and private citizens. Each has a stake in the community and shares porportionally in its moral and economic values and its costs.

When off-the-job accidents occur, a host of community services and facilities comes into action. Hospitals, rehabilitation centers, orphanages, welfare, and numerous other community agencies are called upon to render aid. These community services and facilities are already overcrowded and their ability to render service is overtaxed. Such agencies are generally supported by public tax dollars from both corporate and private citizens, or by community fund campaigns. Hence, widespread and effective off-the-job safety programs can be a potent influence in controlling the expanding demands upon such community services as well as the funds needed for their operations.

The community and its citizens feel the economic consequences of off-the-job accidents in still other ways. Insurance premiums for automobile, fire, and public liability insurance are directly affected by the accident loss experience. Off-the-job safety programs can exert a controlling force to reduce these out-of-pocket personal operating expenses.

The single greatest asset of this nation is its young people—its future citizens and workers. What better means is there available to safeguard these national resources than by off-the-job safety programs which are carried by the workers into their homes and to their families?

The Employer. Now let us look at the benefits of off-the-job safety programs from the employer's viewpoint.

Actual experiences indicates that all of the benefits, with few exceptions, which result from on-the-job safety programs can be expected from off-the-job safety programs.

The cost of fringe benefits such as (1) accident and health insurance (2) group life insurance (3) hospital and surgical insurance and (4) disability wage plans are all affected by off-the-job accidents, and their costs can be influenced by off-the-job safety programs.

The employer also derives benefits from off-the-job safety programs as a corporate citizen of the community.

No business enterprise operates in a vacuum. Every employer wants to be a good corporate citizen.

Off-the-job safety programs provide the best possible media for the employer to enjoy good community relations.

An employer's greatest asset is his loyal, dependable worker. The 24-hour interest which he can exhibit in their safety pays dividends in good employer-employee relations.

Off-the-job safety can be another way of re-emphasizing on-the-job safe practices. It is another avenue of safety training and molding of safety attitudes—through the front door of the employee's home.

The Employee. Regardless of where an injury takes place, it generally results in pain and suffering. Thus, the first and most direct benefit of off-the-job safety is to the individual.

There are many factors of compelling importance to the employee when considering the benefits of off-the-job safety programs.

A worker must protect his savings. Medical and other injury-connected costs frequently incurred are not compensated for by insurance and consequently must be paid out of personal savings. Such expenditures may result in debts and temporary lower standards of living for the family.

Off-the-job accidents frequently result in permanent loss of income and normal family life is seriously disarranged.

Off-the-job safety programs can be a means of providing the element of job security, protecting the employees' earning capacity, and insuring a healthful and rewarding retirement.

Since the influence of off-the-job safety programs extends to the entire family unit, the elimination of employee work absences when other members of the family have suffered injuries is a further benefit of such programs.

Summary. In summary, it can be said that everyone benefits from off-the-job safety programs —the community . . . the employer . . . the employee. What greater incentive is needed to start and operate an off-the-job safety program?

FREE—
GLOVE IMPRINTING

YOUR NAME...YOUR SLOGAN...

printed free on RIEGEL work gloves

What better place for a safety slogan than right in front of your eyes . . . always! New Riegel-designed automatic machinery makes this possible without added cost .. . another Riegel "extra." Your slogans or company name can be printed on the backs or cuffs of Riegel gloves . . . free on any style with a minimum order of only 150 lbs. Emblems can be printed for just the cost of the engravings.

All glove styles: canton flannel, double palm, hot mill, reversible, jersey, nylon blend, leather palm, drivers' gloves, welders' gloves and more. Try Riegel gloves now . . . compare for comfort and wear with all others. You'll quickly agree Riegel means uniform top quality . . . at competitive prices.

Give you ideas?

Ask today for a list of suggested slogans . . . get full details of Riegel's exclusive new feature!

INDUSTRIAL GLOVE DIVISION
RIEGEL TEXTILE CORPORATION
CONOVER, N. C.

Riegel
... GLOVES THAT WEAR ON WHERE OTHERS WEAR OUT

Sales Offices in: BIRMINGHAM • CHICAGO • DETROIT LOS ANGELES • NEW YORK CITY

Warehouses in: CHICAGO • CONOVER, N. C. DETROIT • GREENVILLE, ALA. • LOS ANGELES NEW YORK (Paterson, N. J.) OKLAHOMA CITY • PORTLAND, ORE.

Circle Item No. 38—Reader Service Card

PERSONALS

News of people in safety and related activities

Eliot Parker Appointed To European Post

Headquarters, US Army Communications Zone, Europe, at Orleans, France, has announced the appointment of Eliot V. Parker as safety director for the command.

A former special risk representative for Travelers Insurance Company, Mr. Parker has a long record of safety supervisory service with the US Army and the federal government. In 1942 he became the first War Department Director of Safety and held the post until 1946, achieving the rank of lieutenant colonel. Leaving the service in 1946, he then assumed the civilian post of US Army Safety Director, and in 1955, Secretary of Labor Mitchell appointed him to organize a national safety program for labor and management. Mr. Parker was working as first US Army director of safety when he was asked to head Com Z's safety affairs.

Mr. Parker, who has traveled to many parts of the world, is an author and lecturer on safety matters, and is a member of the National Safety Council, the Institute of Traffic Engineers, and the American Society of Safety Engineers.

Myers Promoted by U. S. Steel

EDWARD C. MYERS, vice president for membership, National Safety Council, has been promoted by United States Steel Corporation to the position of its vice-president —personnel.

Mr. Myers began his career in the steel industry as an observer in the Homestead Plant of Carnegie Steel Company. After service in the safety, employment, and industrial engineering departments, in 1936 he was appointed

Edward C. Myers

plant director of personnel, welfare, and training. In 1938, he became a staff assistant in the Public Relations Department, United States Steel Corporation of Delaware. From 1940 to 1942, Mr. Myers continued in this capacity, in addition to serving as coordinator in the law, industrial, and public relations departments. From 1942 to 1943, he was assistant director of public relations,

do your employees know the answers?

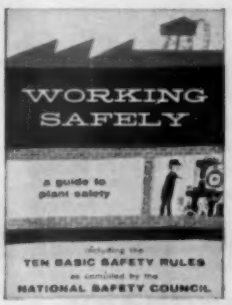
Give your workers a safety refresher course with "Working Safely"... a new safety booklet available from your STEEL SERVICE CENTER stocking Inland 4-WAY® Safety Plate

Safety is a subject we can never learn too much about. That's why you will be doing yourself and the employees in your plant a favor by providing them with copies of this new pocket-size guide to plant safety. "Working Safely" has been compiled by the Safety Engineers of Inland Steel Company and includes the ten basic safety rules of the National Safety Council as well as safety tips on many other subjects.

Copies of this booklet are available from your STEEL SERVICE CENTER.

Another Good Safety Rule—To cover those areas in your plant and on your products where feet and wheels must have safe, sure traction, use Inland 4-WAY Safety Plate...4-WAY is available in large, medium or small pattern, in a wide range of sizes and gages, from your local STEEL SERVICE CENTER ...the most logical source of supply for less-than-carload orders of steel and specialized steel services.

INLAND 4-WAY® SAFETY PLATE



answers:

1. Worker on right is lifting safely. Always bend knees when picking up heavy loads.

2. No safety shoes! He's risking a broken foot or toe!

3. Pushed...always. When you pull a cart, it can get away and run you down.

4. No! Never paint a ladder. It covers up cracks and weaknesses. Use clear varnish instead.

INLAND

Inland Steel Company
30 West Monroe St.,
Chicago 3, Illinois

Circle Item No. 40—Reader Service Card

and in 1943, he transferred to the industrial relations department as assistant to the vice president. With the formation of the United States Steel Company in 1951, Mr. Myers remained in this position until August 1, 1953, at which time he was appointed assistant vice president—industrial relations.

In addition to his responsible position on the Board of Directors of the National Safety Council, Mr. Myers is a member of the President's Committee on Employment of the Physically Handicapped; member of Foreign Relations Committee—American Iron & Steel Institute; member of NAM Advisory Committee on Salaried Personnel; member of Board of Directors—Pittsburgh Personnel Association; Chairman of the Board—John Munhall, Neighborhood House, Munhall, Pa.; Chairman of Citizens' Committee on Occupational Health—Allegheny County; member of Sigma Chi social fraternity; Kappa Phi Kappa, honorary educational fraternity; the University Club; Longue Vue Club; and the American Iron & Steel Institute.

Mr. Myers was graduated in 1934 from Bucknell University, and attended the Advanced Management Program of Harvard University in 1949.

AFL-CIO Appoints Safety Director

GEORGE BROWN, assistant to AFL-CIO President Meany, has been assigned the responsibility of coordinating and representing the AFL-CIO on safety matters.

Mr. Brown is a member of the Office Employees International Union and past president of Local No. 2 of that organization.

He has had extensive experience in the federal government, where he served as executive assistant to AFL members of the National War Labor Board during World War II and to the National Wage Stabilization Board during the Korean War.

When Martin P. Durkin was U. S. Secretary of Labor, Mr. Brown served as his executive assistant.

PAUL W. CLYMER is the new supervisor of safety for the state of Washington. He worked in the mining and steel industries of Michigan and Indiana in the 1930's. In 1942 he joined the Health and Safety Service of the U.S. Bureau of Mines, working in the East, Southwest, and in Washington.

In 1945 Mr. Clymer was state metal mine inspector and eastern

The hands inside these neoprene gloves are safe from chemicals and jagged metal

Akron Electrotype & Stereotype Co. keeps workers productive with neoprene gloves

The production of printing plates at this Akron firm continuously exposes workers to a wide variety of corrosive chemicals as well as needle-sharp metal burrs. By using gloves of neoprene, however, workers receive such dependable protection that they are able to concentrate upon productive operations.

Here are just a few ways in which neoprene gloves serve. In the stripping of plates from molds, they not only resist attack from chemical residues but also protect against the sharp, abrasive burrs on the edges of molded plates. In the coating of molds, they withstand a glycol-silver nitrate solution and keep it from staining workers' hands. In the removal of molds from metal "cases," neoprene gloves keep spent adhesive from sticking to fingers and forearms.

Neoprene is also used throughout industry in many other kinds of safety wear. It is preferred because of its all-around resistance to weather, oils, cracking, chemicals, abrasion and heat. See your local rubber goods supplier for more information about neoprene safety clothing. And send the coupon for future copies of the ELASTOMERS NOTEBOOK, the Du Pont publication which highlights interesting applications of neoprene throughout industry.

DU PONT

Better things for better living
. . . through chemistry

NEOPRENE
— made by Du Pont for 25 years

E. I. du Pont de Nemours & Co. (Inc.)
Elastomer Chemicals Dept. NSN-5
Wilmington 98, Delaware

Please put my name on the mailing list for the Elastomers Notebook.

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Position_____
Firm_____
Address_____
City, State_____

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Washington field supervisor of safety for the Washington Division of Safety. In 1946 he became owner-manager of the Spokane Safety Appliance Company which he headed until his appointment as supervisor of safety for Washington.

Mr. Clymer is a member of the American Society of Safety Engineers and the Veterans of Safety.

D. N. BABB has been named safety administrator for Electro Metallurgical Company, Division of Union Carbide Corporation. He will be located at Electromet's safety headquarters in Niagara Falls, N. Y.

Mr. Babb holds a bachelor of science degree in industrial engineering from Purdue University. After his graduation in 1952, he joined Electromet as an administrative assistant in the safety department at the company's Alloy, W. Va., plant. He became supervisor of safety in 1955.

J. MATTHEW BLAIR, Richeyville, Pa., has been promoted to safety director at the Vesta-Shannopin Coal Division of Jones & Laughlin Steel Corporation.

Mr. Blair, who formerly was superintendent of the Division's Vesta No. 5 mine, succeeds Thomas Park, who is retiring October 1 following a career of more than 50 years in the Tri-State District's coal industry.

Mr. Blair, a native of Anita, Pa., attended schools in Thomas, W. Va.; Bethel Park, Pa., and California, Pa. He also studied engineering at Penn State University, University Park, Pa., and at the University of Pittsburgh. He initiated his J&L service as a mine car repairman at the Vesta-Shannopin Coal Division in 1933. He was named mine foreman, Vesta No. 5 in 1949, and was promoted to superintendent in November 1952.

L. DANIEL LANGFELDT, mining engineering, has recently assumed duties with the Health and Safety Activity of the Bureau of Mines with headquarters in Duluth, Minn.

Mr. Langfeldt graduated from the South Dakota School of Mines and Technology in 1956 with a bachelor of science degree in mining engineering. After graduation he accepted employment with the Anaconda Company at Butte, Mont. He also had mining experience during college vacation periods with the United States Smelting and Refining Company at Lark, Utah, and with the Homestake Mining Company at Lead, S. D. He served 6 months as a 2nd Lieutenant with the Army Engineers during 1957.

The Duluth office of the Bureau of Mines serves the mineral industry in matters of health and safety in the states of Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, and Nebraska.

JAMES A. REDPATH has been named head of the Safety and Security Department at Eitel-McCullough, Inc., San Bruno, Calif. He replaces C. Robert Love who now is associated with the staff of Stanford University.

Mr. Redpath joined Eimac in January, 1957, as assistant to the head of safety and security. Previously, he was a police sergeant on the San Bruno police force, where he served for more than eight years.

A member of the Chief Special Agents Association, he completed an industrial security management course sponsored by the Army Intelligence School.

HARRY E. AVERY, Matson Navigation Company safety engineer, has been promoted to personnel manager of Matson Terminals, Inc., a wholly-owned subsidiary, effective April 1. He will succeed THOMAS J. MCCABE, who is resigning to join M. McInerny, Ltd., Honolulu clothing goods firm.

As Matson safety engineer in San Francisco for the past seven years, Mr. Avery has been responsible for developing an effective accident prevention program. From 1942 to 1950, he was with United Engineering Co., Ltd.—former Matson subsidiary—first as personnel manager, then industrial relations manager. He is a member of the American Society of Safety Engineers.

A. D. SYMONDS, executive vice-president of W. D. Allen Manufacturing Company, Chicago, Ill., has been elected president of the Fire Equipment Manufacturers Association. He succeeds Walter E. Morgan, Jr., assistant vice-president, Walter Kidde & Company, Inc., Belleville, N. J., who automatically becomes a member of the FEMA board of directors.

W. E. Tromanhauser, vice-president and general sales manager, Pyrene-C-O-Two Division, The Fyr-Fyter Company, Newark, N.J., was elected vice-president, and Paul J. Nurkiewicz, vice-president of Stop-Fire, Inc., Monmouth Junction, N. J., was re-elected treasurer.

Elected to the FEMA board of directors during the meeting were Howard R. Carlough, owner, The Safety Fire Extinguishers Company, New York, and L. C. McKesson, vice-president, sales, Ansul Chemical Company, Marinette, Wis.

Obituary

HARRY D. IMMEL

HARRY D. IMMEL, formerly director of the Bureau of Inspection of the Pennsylvania Department of Labor and Industry, died suddenly March 31. At the time of his death he was assistant to the president of the Dispatch Publishing Company, York, Pa. He was 73 years old.

Mr. Immel was a veteran of both World Wars, leaving the service after the second with the rank of colonel.

He was born in York, May 6, 1884. Starting in newspaper work, he became associated with the Department of Labor and Industry after World War I. In 1927 he was appointed director of the bureau and developed a statewide safety program which attracted national attention.

Mr. Immel was actively identified with American Society of Safety Engineers and was a member of the National Safety Council's Board of Directors for several years.

Returning to military service in September 1942, he was assigned

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PAX·LANO·SAV
HEAVY DUTY
GRANULATED SKIN CLEANSER

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58-E

G. H. PACKWOOD MANUFACTURING CO.

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to the Air Service Command at Patterson Field, Dayton, Ohio. He was placed in charge of a safety organization serving air bases from coast to coast. The record established at American bases won three citations from the National Safety Council and led to the extension of accident prevention programs in overseas operations. Lt. Col. Immel was sent overseas to set up programs in Europe, North Africa, and the Near and Far East.

Upon leaving active service in December 1945 he returned to Harrisburg as chief of operations of the Bureau of Rehabilitation. Retiring from state service in 1947, he became assistant to the president of the Dispatch Publishing Company. He was advanced to a full colonelcy in the Air Force Reserve in 1952.

C. W. KINNISON

CHARLES W. KINNISON, a member of the Austin Company's headquarters staff from 1912 until his retirement in 1956, and its treasurer from 1941 to 1954, died in Cleveland at the age of 80 on March 31 at Huron Road Hospital. A native of Norwalk, Ohio, and a graduate of Ohio Wesleyan, Mr. Kinnison joined the national engineering and construction firm as office manager in 1912 and for more than 40 years coordinated its employee safety program and insurance activities in conjunction with other corporate duties.

RUDOLF W. BLUNCK

RUDOLF W. BLUNCK—"Rudy" to his host of friends—died April 6 after a long illness. For several years he served as safety director of the Quaker Maid Company, New York City, and had been an active member of the Metropolitan Chapter, American Society of Safety Engineers since 1951.

Mr. Blunck provided outstanding service to the Food Section through its Executive Committee. He variously served as secretary, vice-chairman and chairman of the Canners and Grocers Division (More recently designated as the Food Processors and Canners Division). At the time of his death, he was chairman of the Visual Education Committee.

ROBERT A. PIKE

ROBERT A. PIKE, formerly Western Regional Field Representative for the National Safety Council at San Francisco, died March 29 at his home in Denver. Death was caused by a heart attack.

At the time of his death, Mr. Pike was field representative for the Colorado Highway Safety Council.

Born in Boulder, Colo., in 1906, Mr. Pike had spent a lifetime in community organization, mostly in the traffic safety field. Prior to his return to Colorado in 1957 he had been promotional manager for the Los Angeles Heart Association. For the preceding years he had been western field representative for the National Safety Council at San Francisco, covering 11 western states. In this capacity he served as consultant to the Governors' Highway Safety Conferences in these states and in 1950 advised the President's Highway Safety Conference.

Steam-heated hands, formed from brass, press the gloves into shape after they've been cut and seamed. John Jakubec, Jr., at the Daytona Glove Corporation shows us how that's done. Glovemaking is an art practiced in Gloversville since the 1760's when early settlers traded tinware for deer skins.

Employers Mutuals of Wausau plays a unique part in century-old crafts...

Wausau Story

IN UPSTATE NEW YORK

by William Eckhof
State Editor

The Knickerbocker News
Albany, New York

Tying a weaver's knot comes naturally to Edwin Shuttleworth, Mohasco Vice President of Northern Manufacturing. Properly impressed are Merle Johnson, Employers Mutuals Underwriter (center) and Carl Eddins, Mohasco Insurance Manager. At the Amsterdam plant, more than 600 looms weave rugs and carpets. Those punched cards you see at the top of the photograph operate like the roll in a player piano, selecting the proper pile yarns to form the carpet pattern. Filler yarn in the moving shuttle forms the weft of the carpet. If a yarn breaks, you tie a weaver's knot . . . if you know how.

"What sets Upstate New York apart from the rest of our state isn't altogether a matter of geography. This area has a personality all its own . . . a proud heritage of craftsmanship, genuine respect for work well done.

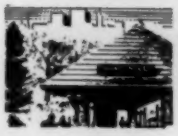
"Maybe that's why so many Upstate industries like to do business with Employers Mutuals of Wausau. For example, at Amsterdam, Mohasco Industries . . . manufacturers of the well-known Mohawk and Alexander Smith carpets. A merger created the problem of consolidating many insurance casualty contracts held by different insurance companies. Employers Mutuals worked closely with Mohasco insurance men to build a well-rounded program. The result: better accident prevention, better claim handling, and more efficiency. At a savings too!

"At Gloversville they were making gloves almost a hundred years before the city of Wausau was incorporated. But now Wausau is a part of the picture . . . Employers Mutuals is the largest compensation carrier in New York's Fulton County. Employers Mutuals' facilities and experience fit the needs of the companies. And there's the ever-present interest and friendly help that gives Employers Mutuals the country-wide reputation of being 'good people to do business with'."

• • • • • • •

Employers Mutuals, with offices all across the country, writes all forms of fire, group and casualty insurance. We are one of the largest in the field of workmen's compensation. For further information see your nearest representative (consult your telephone directory) or write us in Wausau, Wisconsin.

Employers Mutuals *of* Wausau



"Good people to do business with"

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Safety Leaders of 1957

—*From page 42*

General Mills, Inc., Amarillo, Tex., Flour Mill.
General Mills, Inc., Johnson City, Tenn., Flour Mill.
General Mills, Inc., Hopkinsville, Ky., Flour Mill.
Ralston-Purina Co., Jackson, Miss., Branch.
Ralston-Purina Co., Gainesville, Ga., Branch.
Ralston-Purina Co., Richmond, Ind., Branch.
Ralston-Purina Co., Circleville, Ohio, Branch.
Ralston-Purina Co., Delmar, Del., Branch.
Ralston-Purina Co., Tampa, Fla., Branch.
Ralston-Purina Co., Wilson, N. C., Branch.
Ralston-Purina Co., Los Angeles Branch.
Ralston-Purina Co., Lubbock, Tex., Branch.
Ralston-Purina Co., Stockton, Calif., Branch.
Ralston-Purina Co., Oakland, Calif., Branch.
Ralston-Purina Co., Wichita, Kans., Branch.
International Milling Co., Davenport, Ia.
International Milling Co., New Prague, Minn.
Supersweet Foods, New Ulm, Minn.
International Milling Co., Capital "B" Mill, St. Paul, Minn.
International Milling Co., Lockport, N. Y.
Carnation Co., Albers Div., Jefferson, Wis.
Spencer Kellogg & Sons, Inc., Chicago.
Spartan Grain & Mill Co., Newberry Mill.
Carnation Co., Albers Div., Kansas City, Mo.
National Biscuit Co., Carthage Mill.

DIVISION I

U. S. Dept. of Agriculture, Agriculture Stabilization and Conservation State and County Offices, Colorado.

DIVISION II

Group A—Mars, Inc., Chicago.
Group B—Ralston-Purina Co., Battle Creek, Mich., Branch.
Ralston-Purina Co., Ry Krisp Plant, Minneapolis.
The Best Foods, Inc., Buffalo, N. Y.
The Glidden Co., Indianapolis Chemurgy Div.
General Mills, Louisville, Ky., Food Packaging Plant.
General Mills, Minneapolis Purity Oats Mill.
General Mills, Keokuk, Iowa, Purity Oats Mill.

DIVISION III

Group A—Borden Co., Wheeler Div., Green Bay, Wis.
Group B—Sealtest Southern Dairies Div., Norfolk, Va.
Sealtest Southern Dairies Div., Richmond, Va.
Sealtest Sheffield Farms, Norwich, N. Y.
Detroit Creamery Div., Ice Cream Plant, Detroit, Mich.
Consolidated Dairy Div., National Dairy Products Corp., Long Island City, N. Y.
Kraft Foods, Southern Div., Lawrenceburg, Ky.
Kraft Foods, Div. National Dairy Products Corp., Beeryville, Ark.
Kraft Foods, Pinconning, Mich.
Beatrice Foods Co., San Jose Area Div.
The Borden Co., Cities Ice Cream Div., Elgin, Ill.

DIVISION IV

Group A—Hunt Foods, Inc., Fullerton, Calif.
Group B—Crosse & Blackwell Co., Baltimore, Md.
H. J. Heinz Co., Medina, N. Y.
40 Fathom Div., National Sea Products, Halifax, N. S.
Diamond Crystal Salt Co., Akron, Ohio.
Group C—California Packing Corp., Ogden Plant No. 132.
Anderson, Clayton & Co., Foods Div., Jacksonville, Ill.
The Larsen Co., Fort Atkinson, Wis.
H. J. Heinz Co., Saginaw, Mich.
Libby, McNeill & Libby, Walla Walla, Wash.
Libby, McNeill & Libby, Wyoming, Del.
Carnation Co., Albers Div., Jefferson, Wis.

DIVISION VI

Group A—Bayuk Cigars, Inc., Webster Div., York, Pa.
General Cigar Co., Huntington, W. Va.
General Cigar Co., Mt. Carmel, Pa.
General Cigar Co., Allentown, Pa.
Group B—General Cigar Co., H. T. L. Plant, Lancaster, Pa.
General Cigar Co., H. T. L. Plant, Mahanoy City, Pa.

DIVISION VII

Group A—National Distillers Products Corp., Div. National Distillers and Chemical Corp., Frankfort Div.

"Remind me to get acquainted with the plant guards. I came in by the back gate this morning."

Group B—Hiram Walker & Sons, Clarke St., Plant, Peoria, Ill.
Brown Forman Distillers Corp., Labrot & Graham Distillery, Versailles, Ky.
Jos. E. Seagram & Sons, Milan, Ind.

DIVISION VIII

Group A—Pabst Brewing Co., Los Angeles.
Group B—Carling Brewing Co., Frankenmuth, Mich.

DIVISION IX

Group A—National Biscuit Co., Cracker Bakery, Pittsburgh, Pa.
Group B—Interstate Bakeries Corp., Plant No. 20.
Interstate Bakeries Corp., Plant No. 23.
Group C—Interstate Bakeries Corp., Plant No. 10.
National Biscuit Co., St. Louis Bakery No. 441.
National Biscuit Co., York, Pa., Pretzel Bakery.
National Biscuit Co., Cone Bakery, Dayton, Ohio.
National Biscuit Co., Bread Bakery, Rochester, N. Y.
National Biscuit Co., Holland Rusk Bakery.
National Biscuit Co., Battle Creek Cereal Plant.

DIVISION X

Plantations—Kilauea Sugar Co., Limited.
Spreckels Sugar Co., District No. 1, Spreckels, Calif.
Refineries—Amalgamated Sugar Co., Rupert, Ida.

FLUID MILK DIVISION

Group A—Roberts Dairy Co., Omaha, Neb.
Group B—Carnation Co., Tulsa FM and IC Div.
Group C—Carnation Co., Sunnyside FM and IC Div.
Sealtest Southern Dairies Div., Asheville, N. C.
Detroit Creamery Co., Grand Rapids, Mich.
St. Lawrence Dairy Co.
Sealtest Sheffield Farms Div., National Dairy Products Corp., Northern New York District.

GLASS AND CERAMICS

FLAT GLASS DIVISION

Pittsburgh Plate Glass Co., Works No. 6, Ford City, Pa.

GLASS PRODUCTS DIVISION

Group A—Owens Illinois, Gas City, Ind.
Group B—Pittsburgh Corning Corp., Port Allegany, Pa.

CERAMICS DIVISION

Group A—American Radiator and Standard Sanitary Corp., New Orleans.
Group B—American Radiator and Standard Sanitary Corp., San Pablo.

Machine and Mold Shops Division

Owens-Illinois, Central Shops, Alton, Ill.

MARINE

SHIPBUILDING AND REPAIR DIVISION—PRIVATE

Heavy Yards—General Dynamics Corp., Electric Boat Div.

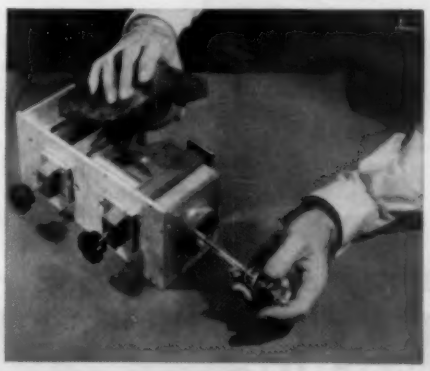
A GREAT AMPLIFIER TUBE IS PERFECTED FOR TELEPHONY

A new transcontinental microwave system capable of carrying four times as much information as any previous microwave system is under development at Bell Telephone Laboratories. A master key to this development is a new traveling-wave tube of large frequency bandwidth.

The traveling-wave amplifying principle was discovered in England by Dr. Rudolf Kompfner, who is now at Bell Laboratories; the fundamental theory was largely developed by Labs scientist Dr. John Pierce. Subsequently the tube has been utilized in various ways both here and abroad. At the Laboratories it has been perfected to meet the exacting performance standards of long distance telephony. And now for the first time a traveling-wave tube will go into large-scale production for use in our nation's telephone system.

The new amplifier's tremendous bandwidth greatly simplifies the practical problem of operating and maintaining microwave communications. For example, in the proposed transcontinental system, as many as 16 different one-way radio channels will be used to transmit a capacity load of more than 11,000 conversations or 12 television programs and 2500 conversations. Formerly it would have been necessary to tune several amplifier tubes to match each channel. In contrast, a single traveling-wave tube can supply all the amplification needed for a channel. Tubes can be interchanged with only very minor adjustments.

The new amplifier is another example of how Bell Laboratories research creates new devices and new systems for telephony.



Left: A traveling-wave tube. *Right:* Tube being placed in position between the permanent magnets which focus the electron beam. The tube supplies uniform and distortionless amplification of FM signals over a 500 Mc band. It will be used to deliver an output of five watts.

Bell Telephone System

Light Yards—United States Steel Corp., Marine Ways.
Pittsburgh & Conneaut Dock Co., Conneaut, Ohio.
Ashland Oil & Refining Co., River Repair Terminal.

SHIPBUILDING AND REPAIR DIVISION—GOVERNMENT

Group A—Navy Dept., Charleston Navy Shipyard.

HARBOR EQUIPMENT DIVISION

U. S. Army Engineer Div., Missouri River, Omaha, Neb.
Atlantic Coast Line Railroad, Port Tampa, Fla.
U. S. Army, Engineer Div., Ohio River.
U. S. Army Engineer Div., Southwestern, Dallas, Tex.

STEVEDORING DIVISION—BULK CARGO

Erie Dock Co., Erie, Pa.
Erie Dock Co., Cleveland, Ohio.

STEVEDORING DIVISION—GENERAL CARGO

Interstate Carloading Co.

CARGO AND PASSENGER VESSELS DIVISION—GENERAL CARGO

Interstate Carloading Co.

CARGO AND PASSENGER VESSELS DIVISION—PRIVATE

Cargo and Coastwise—States Marine Lines, New York.
Inland Waterways—Bradley Transportation Line, Michigan Limestone Div., United States Steel Corp., Rogers City, Mich.
Inland Steel Co., Fleet.

TANKER DIVISION

Ocean and Coastwise, American Oil Co., Tanker Fleet.

PAPER INDUSTRY

PULP AND PAPER MILLS DIVISION

Group A—Kimberly Clark Co., Kimberly Mill.
Group B—Brunswick Pulp and Paper Co., Brunswick, Ga.
Marinette Paper Co., Marinette, Wis.
Group C—Falls Paper and Power Co., Oconto Falls, Wis.
Cornell Paperboard Products Co., Milwaukee Plant.
National Vulcanized Fibre Co., Yorklyn, Del.
Group D—Strathmore Paper Co., Turner's Falls.
Congoleum Nairn, Inc., Cedarhurst Plant.
Certain-teed Products Corp., York, Pa.
United States Gypsum Co., Oakmont, Pa.
Marathon, Div. American Can Co., Ashland, Wis.
Fort Orange Paper Co., Castle on Hudson, N. Y.
Certain-teed Products Corp., Richmond, Calif.
Container Corp. of America, Chattanooga Mill.
Flintkote Co., Rockport, N. Y.
Coos Bay Pulp Corp., Empire, Ore.
Certain-teed Products Corp., Niagara Falls, N. Y.
Group E—Mead Corp., Nashville Div.
United States Gypsum Co., Galena Park, Tex.
National Gypsum Co., Kalamazoo, Mich.

St. Regis Container Corp., Muskingum Fiber Products Div.
American Writing Paper Corp., Albion Div.
Flintkote Co., Little Ferry Plant.
Celotex Corp., Madison, Ill.
United States Gypsum Co., Oakfield, N. Y.
Robertson Paper Box Co., Montville, Conn.
United States Gypsum Co., Gypsum, Ohio.
International Paper Co., Livermore Mill.
National Gypsum Co., Newburgh, N. Y.
Johns-Manville, Tilton Plant.
National Vulcanized Fibre Co., Marshall Bros. Div., Yorklyn, Del.
Charmin Paper Products Co., Little Rapids, Wis.
Spaulding Fibre Co., Hayes Plant, North Rochester, N. H.

PAPER BAGS GROUP, CONVERTING DIVISION

Thilmany Pulp & Paper Co., Bag Mill, Kaukauna, Wis.
St. Regis Paper Co., Kansas City Multiwall Bag Plant.
Pillsbury Mills, Paper Div., Wellsburg, W. Va.
St. Regis Paper & Bag Corp. of Puerto Rico, Playa Ponce Multiwall Bag Plant.

BOXES AND CARTONS GROUP, CONVERTING DIVISION

Group A—Sealright-Oswego Falls, Inc., Kansas Plant, Kansas City.
Container Corp. of America, Fort Worth Carton Div.
Group B—Fiberboard Paper Products Corp., Portland Carton Plant.
Container Corp. of America, Santa Clara Carton Div.
Standard Packing Corp., Bradley & Gilbert Div.
Container Corp. of America, Chicago-Flexible Div.
Container Corp. of America, Muskogee, Okla.
Fibreboard Paper Products Corp., San Joaquin Carton Plant.

ROOFING PAPER GROUP, CONVERTING DIVISION

The Rubberoid Co., Joliet, Ill., Plant.
The Rubberoid Co., 16th St. Plant, Erie, Pa.
Certain-teed Products Corp., Dallas, Tex.
Rubberoid Co., Minneaoplis Plant.
Johns-Manville, Marrero Plant.
Rubberoid Co., Baltimore Plant.
Flintkote Co., Pioneer Div., Portland, Ore.
Brantford Roofing Co., Ltd., Brantford, Ont.
Certain-teed Products Corp., Tacoma, Wash.

INSULATING AND BUILDING BOARD GROUP, CONVERTING DIVISION

Flintkote Co., Meridian, Miss.
Johns-Manville, Jarratt Plant.
Simpson Logging Co., Insulating Board Plant, Shelton, Wash.

SPECIALTIES GROUP, CONVERTING DIVISION

Crown Zellerbach Corp., Western Waxide Div., San Leandro, Calif.
Sefton Fibre Can Co., Piqua, Ohio.

PULPWOOD LOGGING DIVISION

Chesapeake Corp. of Va., Pulpwood Logging.

PETROLEUM

MANUFACTURING—ENTIRE COMPANY

Group A—Lago Oil & Transport Co., Ltd., Aruba Refinery.

Group B—Cit-Con Oil Corp., Lake Charles, La.

MANUFACTURING—INDIVIDUAL PLANT

Group A—Sinclair Refining Co., Marcus Hook, Pa.

Group B—The Texas Co., Refining Dept., Pacific Coast Div.

Group C—The Texas Co., Refining Dept., Port Arthur Package Div.

WHOLESALE MARKETING

Group A—Standard Oil Co. (Ohio).

Group B—Leonard Refineries, Inc., Alma, Mich.

RETAIL MARKETING

Standard Oil Co. (Ohio).

DRILLING

Group A—Humble Oil & Refining Co.

Group B—General Petroleum Corp.

NATURAL GASOLINE

Group A—Phillips Petroleum Co., Natural Gas Dept.

Group B—General Petroleum Corp.

OIL AND GAS PIPE LINE

Group A—Southern Natural Gas Co., Birmingham, Ala.

Group B—Mid-Continent Pipe Line Co., Tulsa, Okla.

EXPLORATION

Gulf Oil Corp., Fort Worth Production Div., Exploration Dept.

RESEARCH AND DEVELOPMENT

Phillips Petroleum Co., Research and Development.

PRINTING AND PUBLISHING

Group A—The Standard Register Co., Dayton, Ohio.

Group B—The Standard Register Co., Atlantic Div.

PUBLIC UTILITIES

COMBINATION GAS & ELECTRIC

Group A—Baltimore Gas & Electric Co.

Group B—Central Illinois Light Co.

Group C—Interstate Power Co., Dubuque, Iowa.

Group D—Michigan Gas & Electric Co., Three Rivers, Mich.

GAS

Group A—Columbia Gas System, Pittsburgh Group Companies.

Group B—Peoples Natural Gas Co.

Group C—Mystic Valley Gas Co.

Group D—River Gas Co., Marietta, Ohio.

North Shore Gas Co.

Water, Gas and Sewage Treatment Dept., City of Duluth.

Roanoke Gas Co., Roanoke, Va.

Pittsburgh Plate Glass Co., Gas Dept., Works No. 4, Ford City, Pa.

Lynchburg Gas Co.

Central Massachusetts Gas Co.

ELECTRIC

Group A—Georgia Power Co., Atlanta.

Group B—Metropolitan Edison Co.

Group C—New Jersey Power & Light Co., Denville, N. J.

Group D—Lowell Electric Light Corp.

Lawrence Electric Co.

Fall River Electric Light Co.

Montaup Electric Co., Somerset Station.

Kingsport Utilities, Inc.

Quincy Electric Co.

Citizens Electric Corp.
Sho Me Power Corp., Marshfield, Mo.
Northern Berkshire Electric Co.
Old Dominion Power Co.
Northampton Electric Lighting Co.
Southern Berkshire Power & Electric Co.
Granite State Electric Co.
Sand Mountain Electric Cooperative, Fort Payne, Ala.
Maquoketa Electric Cooperative, Anamosa, Iowa.
Central Kansas Electric Cooperative.
Jackson Electric Dept., Jackson Tenn.

WATERWORKS

Water Gas and Sewage Treatment Dept., City of Duluth.
Superior Water Light & Power Co., Superior, Wis.

RUBBER

Division I—United States Rubber Co., Mishawaka, Ind., Plant.
Firestone Plastics Co., Pottstown, Pa.
Division II—United States Rubber Co., Providence, R. I.
Dominion Rubber Co., St. Jerome, Que.
Division III—Simplex Wire & Cable Co., Cambridge, Mass.
Division IV—Firestone Tire & Rubber Co., Xylos Plant.
American Synthetic Rubber Corp., Louisville, Ky.
United States Rubber Co., Gilmer Plant.
Hewitt-Robins, Inc., Foam Products Div.
World Bestos Div., The Firestone Tire & Rubber Co., New Castle, Ind.
Duroflex, Inc., Div. of Reeves Bros., Inc., Buena Vista, Ind.
Division V—Goodyear Tire & Rubber Co., Reclaim Div.
Goodyear Tire & Rubber Co., Plant No. 5, Akron, Ohio.
United States Rubber Co., Santa Ana, Calif.
General Shoe Corp., Nashville, Tenn.
B. F. Goodrich Co., Work Technical Group.
Firestone Tire & Rubber Co., Research Laboratory.
B. F. Goodrich Co., Riverside Plant.
B. F. Goodrich Co., Du Bois.
Canadian Lastex Ltd., Montreal, Que.
Firestone Tire & Rubber Co., Flotation Gear Div., Magnolia, Ark.
Xylos Rubber Co., Div. Firestone Tire & Rubber Co., Los Angeles.
Gates Rubber Co., Canadian Branch.
Goodyear Tire & Rubber Co., Muncie, Ind., Branch.
Firestone Tire & Rubber Co., Akron Retread Shop.
Lobl Manufacturing Co., Middleboro, Mass.

TEXTILE

DIVISION I

Group A—B. F. Goodrich Textile Products, Akron, Ohio.
Group B—Medical Supply Co., Rockford, Ill.

DIVISION II

Group A—B. F. Goodrich Co., Martha Mills.
Group B—Firestone Tire & Rubber Co., Sao Paulo, Brazil.
Group C—Amerotron Co., Peerless Plant, Belton, S. C.

TRANSIT

Division I—St. Louis Public Service Co., St. Louis, Mo.

Division II—New Orleans Public Service, Inc., Transit Operations.

Division III—Phillips Petroleum Co., AED, Idaho Falls, Ida.

WOOD PRODUCTS

LOGGING DIVISION

Group A—Weyerhaeuser Timber Co., Clemons Operation, Cosmopolis, Wash.

Group B—United States Plywood Corp., Kosmos Timber Div.

Dierks Forests, Inc., Mountain Pine Div. Loggers.

MacMillan & Bloedel Ltd., Menzies Bay Div.

Crown Zellerbach Corp., Edward P. Stamm Tree Farm, Vernonia, Ore.

SAWMILLS DIVISION

Group A—Weyerhaeuser Timber Co., Klamath Falls, Ore.

Group B—Dierks Forests, Inc., Wright City Plant.

Group C—American Forest Products Corp., Lakeview, Ore.

PLYWOOD AND VENEER DIVISION

Group A—Algoma Plywood and Veneer Co., Algoma, Wis.

Group B—General Plywood Corp., Tarboro, N. C.

FURNITURE DIVISION

Kroehler Manufacturing Co., Plant No. 3, Kankakee, Ill.

Kroehler Manufacturing Co., Cleveland, Ohio.

Kroehler Manufacturing Co., Montreal, Que.

Connor Lumber & Land Co., Laona, Wis.

WOOD PRESERVING DIVISION

Group A—Kopper Co., Orrville, Ohio.

Koppers Co., Montgomery, Ala.

Koppers Co., Grenada, Miss.

Koppers Co., Texarkana, Tex.

Koppers Co., Houston, Tex.

Group B—Canada Creosoting Co., Ltd., Truro, N. S.

Canada Creosoting Co., Ltd., Newcastle Plant.

Koppers Co., Roanoke Valley, Va., Plant.

Koppers Co., Kansas City, Mo.

Koppers Co., Alexandria, La.

Koppers Co., Finney, Ohio.

Koppers Co., Hagerstown, Md.

COOPERAGE DIVISION

Brown-Forman Distillers Corp., Blue Cross Cooperage-Finishing Div., Louisville, Ky.

Schenley Distillers, Inc., Chess & Wymond Plant.

White Oak Cooperage Co., Louisville, Ky.

Julius Kessler Distilling Co., Jackson, Tenn.

Calvert Distilling Co., Pine Bluff, Ark.

RETAIL LUMBER YARDS DIVISION

Weyerhaeuser Timber Co., St. Paul, Minn., Office.

Weyerhaeuser Timber Co., Tacoma, Wash., Office.

BOX MANUFACTURING DIVISION

American Forest Products Corp., Lakeview, Ore.

WOODWORKING DIVISION

Group A—Edward Hines Lumber

Co., Millwork Div., Chicago.

Group B—American Excelsior Corp., Marinette Div.

WOOD SHINGLES DIVISION

Flavelle Cedar Shingle Div., Canadian Collieries Resources Ltd., Port Moody, B. C.

FORESTRY DIVISION

Group A—U. S. Forest Service, Lake States Region, Milwaukee, Wis.

Group B—U. S. Forest Service, Central States Station, Columbus, Ohio.

U. S. Forest Service, Pacific Northwest Station, Portland, Ore.

Weyerhaeuser Timber Co., Forestry, Tacoma, Wash.

Fire Group Meets—Will Revise Codes

Some 2,000 persons, from the United States, Canada, and distant countries, are expected to attend the week-long 62nd annual meeting of the National Fire Protection Association scheduled to open May 19.

The world's leading fire protection authorities will meet in Chicago to discuss new and old threats to the fire safety of people.

How to cope with fire hazards of everything from nuclear reactors to amateur rockets are among topics the experts will cover.

A major item of business at the meeting will be proposed revisions of the National Fire Codes, prepared and published annually by the Association.

Fire matters to be treated by the international organization include hotel fire safety, aviation rescue and fire fighting equipment, hospital operating room practices, flammable liquids and gases, building exits, and construction materials.

Among other topics will be a report on fire effects of the Nevada bomb tests, the burning of an abandoned town in Canada to advance the cause of fire science, and the arson problem.

Forward-Looking Program For ASME Meeting

Four days of intensive technical sessions, which will include topics in the power, safety, design, fuels, rubber and plastics, heat, production, and solar energy fields, are announced for the semi-annual meeting of the American Society of Mechanical Engineers to be

held in Detroit, Mich., June 15-19.

Engineers attending will consider such individual items as Russian and American systems of automation, work on commercial atomic energy power plants, gas turbines for automobiles, how to store solar energy for use when the sun doesn't shine, jet compression, and new steel alloys.

There also will be two panel discussions on the field of engineering: "Who Controls your Future," for the younger engineer; and comments on the relationship between the consulting engineer and his client.

Those concerned particularly with commercial atomic energy can inspect the new Enrico Fermi atomic power plant. Visits to the plants and technical sections of major automobile producers will also be offered to those at the ASME conference.

NYU to Hold Course In Industrial Safety

A short course in industrial safety will be given May 19 through 23 by New York University's Center for Safety Education. The course, says Dr. Walter Cutter, director of the Center, is especially designed for "safety workers who have recently come into the field, management people who have safety duties, and experienced safety specialists who have never had the opportunity for systematic training." It will be presented in cooperation with the American Society of Safety Engineers.

Students are to meet from 9:15 a.m. to 5 p.m. on each of the five days. They will be taught by faculty members from the Center's Certificate Program in Industrial and Traffic Safety.

The course is concerned with accident prevention and performance efficiency, the collection, analysis, and use of accident data, and preventive and corrective measures for industrial accidents. Eight hours will be devoted to discussions of practical problems raised by the students.

Further information can be obtained from Dr. Cutter at the NYU Center for Safety Education, 6 Washington Square North, New York 3.

Council Announces Public Interest Awards

For exceptional service to safety, the National Safety Council's Public Interest Award for 1957 has been made to 373 public information media.

Recipients of the annual noncompetitive award include 40 daily and 18 weekly newspapers, 147 radio and 36 television stations, 1 TV and 2 radio networks, 4 radio-TV syndicates, 10 general circulation and 29 specialized magazines, 29 advertisers, and 57 outdoor advertising companies.

Judges of the award were:

Hugh Curtis, editor, *Better Homes and Gardens*; Norman Damon, vice president, Automotive Safety Foundation; Maxwell Fox, Advertising Council; Frederick H. Garrigus, manager of organizational services, National Association of Broadcasters; Wesley I. Nunn, advertising manager, Standard Oil Company, (Ind.); Dr. Kenneth E. Olson, Medill School of Journalism, Northwestern University; John Osborn, Midwest news editor, *Broadcasting Magazine*.

Radio, television, and advertiser winners of the Public Interest Award will be considered for the Alfred P. Sloan Radio-TV Awards for Highway Safety, to be judged later.

Distillery Group Expands Safety Program

During 1944, Brown-Forman, National Distillers, Schenley, and Seagram got together to study accident problems and improve their programs. Hiram Walker joined the group in 1950. Since that time other distilleries have joined the group and made their influence felt in reducing personal injuries and property losses in the industry.

This safety organization holds meetings every four months. Each member company takes its turn as host to the group. There is a helpful exchange of ideas and discussions of methods of preventing injuries and fires.

Since the formation of this group the injury rates in the industry have shown a downward trend. Formerly accident rates in distilleries were among the

highest in the food industry; now they are lowest. Recent National Safety Council figures show this comparison in frequency rates (Disabling injuries per 1,000,000 man-hours worked):

All industry	6.84
Food Industry	12.20
Distilleries	2.47

Any distillery interested in joining the Distillery Safety Directors' Group is invited to write to J. J. Prabulos, National Distillers Products Company, 99 Park Ave., New York 16.

Synthetic Fabric Can Be Static Free

Dynel protective work clothing is now available in a durable static-free finish, Milburn Company of Detroit reports.

This new process, known as "Astonizing," will extend uses of this synthetic fabric for protective clothing. The method will make available a garment which is chemically inert, flame resistant, and static-free after repeated washing or dry cleaning.

Aston static-free finish is a development of Onyx Oil & Chemical Company, Jersey City, N. J. Dynel is an acrylic fiber manufactured by Union Carbide Company.

Milburn reports that treated garments retained effective antistatic properties after more than 50 launderings. Exposure to strong acids or alkalis does not affect permanence of the finish, which actually becomes a part of the Dynel fiber.

The finish repels lint and dust and is said to be easily decontaminated after radiation exposure.

Industries expected to use the treated garments extensively include petroleum, chemical, paint, missile, ordnance, and others where flammable vapors offer a spark hazard, or where corrosive fumes, dusts, or liquids are present.

When new, the treated fabric is approximately 500 times as conductive as cotton fabric. After 150 launderings, it was still 20 times as conductive as cotton. The new finish shows sustained resistance to chemical reagents.

Immersion tests with strong

acids, alkalis, and organic solvents in concentrations up to 100 per cent showed at room and elevated temperatures (all followed by one laundering) only two conditions under which the finish lost its effectiveness: 20-hour immersion at 160 F of concentrated nitric acid or 60 per cent sodium hydroxide. In any actual application it is hardly likely that any fabric would be subjected to such extreme exposures.

Laundering in the presence of an oxygen bleach is likely to remove the finish.

Introduced some seven years ago, Dynel has become widely used for work clothing. It is inert to weak and strong acids, alkalis and salts, and to virtually all commonly-used organic chemicals. It does not support combustion. It is mold-, rot-, and insect-resistant. It possesses exceptional wearing qualities and preserves a neat appearance between launderings.

Harness Conelrad For Storm Warnings

Intended originally to keep enemy bombers and guided missiles from using radio transmission as navigational aids, and yet permitting alerting and other essential radio operation, the Conelrad program is to be made available for disseminating emergency weather bulletins. Particularly important are seasonal hurricane warnings along the coasts and information about inland tornadoes, floods, and other devastating acts of nature.

As its coined name implies, the Conelrad program was established by the Federal Communications Commission and the U. S. Air Force for the CONtrol of ELectromagnetic RADiation.

By an order adopted December 5, 1957 by the FCC, all broadcast stations (AM, FM, and TV) are enabled to use, during licensed hours and on their regular frequencies, the Conelrad attention signals preparatory to the broadcast of Weather Bureau emergency warning on a condition of immediate danger of life and property.

These signals will set off Conelrad alert receivers which provide automatic warning to FCC

licensees, as well as to law enforcement agencies, industrial plants, schools, etc., which have receivers modified to receive the warning tones.

Conelrad alerting capacity is now mandatory for all broadcast, public safety, industrial, land transportation, and experimental services. All other radio services are subject to voluntary Conelrad participation. Several hundred thousand licensees have installed Conelrad alert receivers, tuned to key broadcast stations, many of which operate 24 hours a day.

Although these Conelrad receivers are always turned on and kept tuned to the alerting key broadcast station, the speaker on the receiver is normally muted until it receives the Conelrad attention signal (two 5-second carrier breaks and 15 seconds of a distinctive tone). This activates the receiver speaker to receive all subsequent Conelrad radio alert messages. Many receivers also ring bells or gongs or turn on signal lights when triggered.

Under the new storm-warning plan, Conelrad receivers would also receive emergency weather information. Through the medium of these receivers, broadcast stations can rebroadcast weather bulletins as received on regular broadcast frequencies.

The resultant plan, it is believed, will provide a worthwhile service to the public as well as to all radio services. It permits additional receivers—ordinary receivers which can be adapted economically for the purpose—to be installed in public, business, and other places requiring quick information about weather conditions.

For example, such receivers at schools will permit adequate warning and, at the same time, will overcome telephone-line jamming which inevitably occurs in severe weather. In extreme cases, the population of an affected area may be warned to take cover, even at night.

Doctor: "You cough more easily this morning."

Patient: "I should. I've been practicing all night."

WHAT'S NEW IN NATIONAL SAFETY COUNCIL SERVICES*

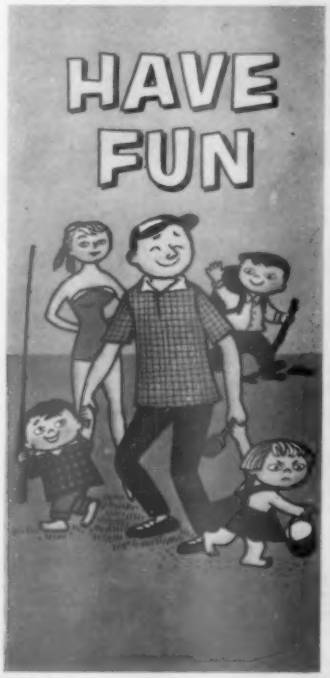
Vacation Safety Pamphlet

Where are you vacationing this year—at the seashore, in the mountains, at a sports spot, or right at home?

Well, the National Safety Council doesn't care where you go on your vacation. But it does hope you'll return from your time off happy—and whole.

Have Fun, the Council's recently published vacation safety pamphlet, gives tips that should help make your vacation safer and more fun.

Whether it's sightseeing in Paris, skiing in the mountains, or swimming in a peaceful lake somewhere, there are certain rules



the safe, smart vacationer observes. *Have Fun* lists them.

Maybe you're staying at home this year. Then the pamphlet has safety pointers for you, too.

Regardless of where you vacation, the booklet says, you'll come back to work in tip-top shape by planning your vacation for fun, rest, and safety.

Home Emergency Booklet

Johnny has a nosebleed. How would you stop it? Mary has just swallowed poison. What's the most important element in treating her?

Answers to these and other questions parents—or anyone else for that matter—should know about home mishaps are given in

a recently published National Safety Council booklet, *What to Do about Home Injuries.*

The 36-page multi-colored booklet gives emergency pointers on everything from animal bites to gunshot wounds. A feature of the easy-to-read booklet is an emergency telephone list containing spaces for recording the telephone numbers of your doctor, hospital, druggist, police and fire departments.

Oh, yes—the answers to the questions about nosebleeds and poisonings.

If Johnny has a nosebleed and it doesn't stop quickly, you should (1) let him sit up quietly, (2) pinch the sides of his nose together and hold the pressure for several minutes, or until the bleeding stops, (3) ask him to spit to clear his throat if drainage interferes with his breathing, or (4) call the doctor if bleeding resumes after you've pinched the nose for several minutes.

The most important element in the treatment of accidental poisoning, according to the booklet? Speed. "Don't waste time telephoning, but act," it advises. After reading *What to Do about Home Injuries*, you'll know whether to give a poison victim an antidote or rush him to the hospital.

*Look to this page each month for latest news about NSC services. Address request for additional information, samples, or prices to the Membership Service Division.

Urge Safety Code for Moving Sidewalks

Moving sidewalks for transporting people present safety problems which could be solved by a safety code developed under the procedures of the American Standards Association. This was the consensus of a recent general conference of government officials, manufacturers, and users at ASA headquarters.

The conference recommended to the ASA that safety standards for passenger conveyors be developed, and that the present ASA Committee A17 on *Elevators, Dumbwaiters and Escalators* develop the standards. This committee developed the American Standard safety code on the same subject which has been adopted by almost a thousand municipalities. It also recommended that the membership of the committee be enlarged to include representatives of those national organizations concerned with passenger conveying equipment.

For a More Successful Poster Program

POSTER program aids miniatured on this and the following pages are NEW — shown here for the first time. Those illustrated in one color are actually printed in two or more colors.

Also, be sure to refer to the 1958 directory section of occupational posters (December 1957 issue, National Safety News) which contains an excellent selection of 756 posters on a great variety of subjects.

JUMBO POSTER FOR JULY 1958

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR JULY, 1958

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-color design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.

©NATIONAL SAFETY COUNCIL

1327-A **8½x11½**

This new four color poster is illustrative of the 72 four color posters shown in the 1958 Poster Directory.

Posters below are printed in two or more colors

(Available only in sizes indicated)

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1350-B 17x23

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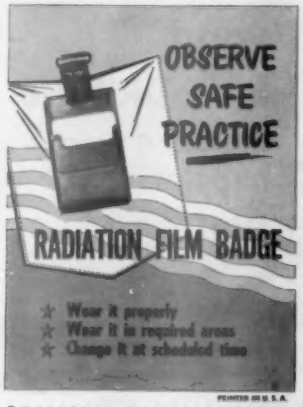
1281-B 17x23
1335-A 8½x11½



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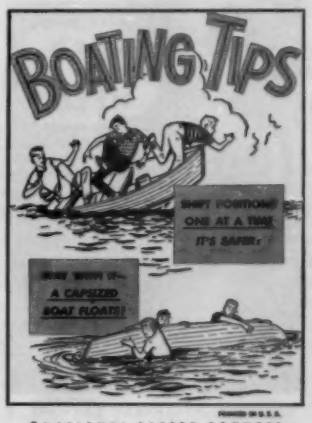

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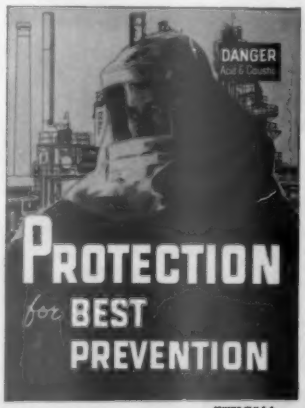
1261-B 17x23



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1245-A 8½x11½

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1347-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

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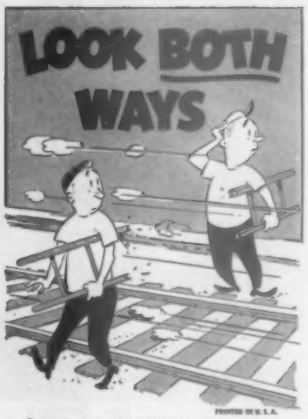

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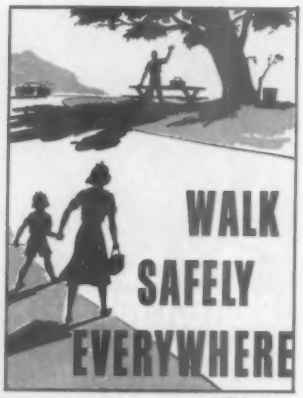
1252-A 8½x11½



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T-1334-B 17x23

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T-1332-C 25x38
T-1333-A 8½x11½

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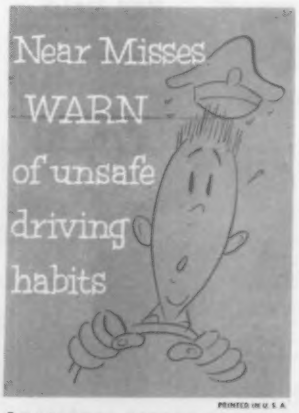
V-1331-A 8½x11½



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V-1329-A 8½x11½

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V-1330-B 17x23

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Progress Through Tragedy?

—*From page 23*

labor departments to meet adequate federal standards for the receipt of federal funds.

2. Call upon the states and provinces to assume their responsibility for safety and to pass legislation based on the principles of flexible codes that keep pace with technological changes and recognize realistically differences in hazards from plant to plant and industry to industry to promote, establish and maintain safe working places and safety programs in industry.

3. Cooperate in all efforts to control off-job hazards by working for needed legislation and by participating in national and community programs, especially in the field of traffic where the toll of deaths and injuries has become a national disgrace in both the United States and Canada.

4. Continue to insist that federal control be maintained over the unique hazards created by atomic energy to assure rigid enforcement of health and safety regulations necessary for the protection of workers and the general public.

5. Demand that adequate financing be provided by federal, state, or provincial and local governments for trained personnel to protect our people adequately through research, inspection and enforcement activities.

This is an action program. It makes no allowances for the "Yes, but . . ." attitudes of legislators who are unable to distinguish between oratory and accomplishments. But it does provide all individuals and groups a basis for action in this legislative field.

If there is a better legislative program, we want to hear about it. We are always ready to admit there is room for improvement, and we are always ready to accept constructive criticism for frank discussion.

Up to this point emphasis has purposely been placed upon the legislative approach to safety problems of tomorrow. As an organization, the AFL-CIO has steadfastly adhered to the prin-

ciple of minimizing the role of government in our affairs. The legislative program mentioned above, therefore, does not represent our total efforts to protect the workers of America from industrial hazards.

We still believe that true progress in safety for the future can best be assured when individual citizens do for themselves what they can.

We still believe that the frontiers of progress are reached first by individual effort and that government action is dictated only when the resulting benefits cannot be distributed in any other manner. As a consequence, there are important roles for labor and management to play in the advancement of safety.

The front line of joint labor-management action is at the work place. Here the wage earner faces conditions which endanger his life, his body and the well-being of his family. Here management sees first-hand the human costs of hazards, as well as economic costs.

Progressive management knows that here is the time and place to join with trade unions in the fight against waste—human and economic. In an ever-growing number of instances joint union-management programs are being operated as a result of mutual recognition of not only their duties but also their rights.

Out of this mutual respect and confidence have developed clauses in collective bargaining agreements setting forth rights and duties. We of the trade union movement are proud of this approach by private citizens to industrial safety.

We hope to see this form of union-management cooperation grow rapidly. At our last convention the delegates unanimously declared as a matter of AFL-CIO policy that the Executive Council:

1. Urge affiliated international and national unions to insist through collective bargaining that contracts contain clauses establishing the employers' responsibility to provide a safe work place and safe and healthful working conditions; and that future contracts contain basic safety clauses providing for the use of American Standards Association safety standards as minimum acceptable safety conditions.

2. Recommend to our affiliates that they urge every local union to establish a safety committee and affiliate with the Labor Division of the National Safety Council, thereby assuming a proper position of responsibility and leadership for the protection of all people in the community.

Here again is an opportunity for the Chamber of Commerce and the National Association of Manufacturers to join with the AFL-CIO in a realistic and meaningful

"Glide bomber experiments again, Dazewell?"

program to advance the safety program.

Let these national employer organizations and their "local unions" throughout the country urge their members who are parties to collective bargaining agreements—and there are many such member companies—to join with the trade unions in their work places in prompting safety by contracts.

Incidentally, an invitation to cooperate with trade unions is extended to government, too. There is no legal prohibition which denies officials in federal, state, county and municipal governments the rights to join with trade unionists in their employ to foster, promote, and develop joint safety programs. There is room for progress in safety among government employees, as well as among privately employed workers.

Concretely, there is tremendous opportunity for the largest single employer in the nation—the Federal Government—to lead the way. There are hundreds of thousands of trade union members employed by federal, state, and local governments throughout America who stand ready and able to meet with government officials in this vital area of safety.

In the name of the AFL-CIO and its affiliates, let me say that we shall acknowledge a reply to our invitation from government with as much genuine pleasure as we do from private industry.

Finally, the AFL-CIO considers it a privilege to cooperate with private scientific and professional groups who recognize the importance of industrial hazards. Certainly our experiences with the National Safety Council and the American Standards Association —to mention a few—has convinced us that much can be done by private effort.

In the area of legislation, we can no longer plod along until tragedy of catastrophic magnitude shocks the nation. Nor can we afford the luxury of accepting political pledges instead of needed legislation.

Our course of action for the future begins here and now: Let every individual citizen, every organization, every legislator who believes in safety demonstrate his convictions by action. Through legislation let us guarantee that everyone will be protected against industrial hazards uniformly.

In the area of private effort, we must devote much more time and energy to the goals of our safety programs. We of labor need more state and local safety committees. Among our affiliates more local unions could devote additional time to safety progress.

Management has much to do to insure the growth of collective bargaining agreements and labor-management safety committees. As an employer, governments of all kinds need to accept more fully their responsibilities in the field of labor-management safety cooperation.

Whatever may be the magnitude of safety problems tomorrow, they cannot be solved effectively if we continue to be satisfied with our rate of progress today. Let's not wait for tomorrow. Let's achieve greater progress now.

If You Can't Avoid Snakes

—*From page 27*

bility of serious infection by decreasing bacteria-destroying elements of the blood.

Temperature. Poisonous snakes are not found north of the southern tip of Canada. Where air and ground temperatures are seldom below 50 F, periods of hibernation are shorter and snakes have a longer season of activity.

Snakes avoid extremes of temperature. Their muscles do not function below 40 F, and temperatures above 110 F are fatal to them. In extremely hot weather they are more active at night and in cooler weather during the day.

On hot days they seek the shade of rocks, crevices, bushes, brush piles, and similar shelter. They may also be found in hay or grain fields, ledges or rock outcroppings near wooded areas, and under buildings, walks, and bridges.

Snakes like good cover to help in hiding from enemies, watching for prey, and maintaining a comfortable body temperature. Each species has excellent natural camouflage, enabling it to blend with its surroundings.

Cottonmouth moccasins often use partly-submerged logs, barges, boats, and low-hanging branches over streams and sloughs, where they may be reasonably safe and obscure, yet can drop off into the water to catch their prey or escape enemies.

Safe Practices

For the professional snake-handler, there is one basic and often-ignored principle: keep your eye on the snake.

For those who want to avoid snakes: keep your eye on any place around you where a snake might be found. Don't place any part of your body in a position where it could be within striking range of a snake.

To be specific:

1. When walking on country roads or paths, stay on high ground. If brush, logs, or stumps line a side of the road, keep five feet or more away from them, if you can. Since the striking range of a snake is about two-thirds of its length forward or one-third upward, a five-foot clearance would be about six inches free of anything except the largest Gulf States diamondback.

When the potential victim is on ground lower than the snake, it might strike above his boot tops, perhaps the upper leg. At this point of the body there is less clothing to penetrate, and garments fit tighter, giving the snake an opportunity to score a more effective hit. Also, the upper leg area, being nearer the trunk, is more difficult to treat, and the bite is more likely to be fatal.

2. On narrow paths, watch where you put your feet. Keep away from clumps of grass, brush, or other cover along the path. In dense brush wear high boots. Heavy brush may reduce chances of a snake making a direct hit but also increases the possibility of stepping on a partly-concealed snake. A long stick may be used to probe around tall grass and

bushes. A snake will strike at a stick as readily as at a live target.

3. When a fallen tree, branch, or log is in the path, do not step over it without looking. A poisonous snake lurking under the log would have a perfect target.

4. When in areas where there are likely to be cottonmouth moccasins, do not row a boat closer to stumps or partly-sunken logs than you would walk on land. Do not put your hands in or around such obstacles, unless you are sure there are no cottonmouths in the area. Snakes can bite as effectively underwater as they do on land, although resistance of the water reduces their striking range and force. All snakes are good swimmers.

Keep your eye on any low branches overhanging the stream. Do not step ashore until you have spotted a clear patch of ground. Look your boat over carefully before stepping into it. Snakes looking for a place to rest frequently board barges, off-shore rigs and small boats.

5. When leaving a truck or car, look around before stepping to the ground. If possible, park on hard ground or a clear surface. Be sure the doors and trunk of the car are closed and that windows are raised at least three-fourths of the way.

With open-body trucks, use the same precautions you would on the ground. Be especially careful when handling tools or rigging. Keep tool boxes and cabinets closed when not in use.

6. Do not walk close to high banks, rock ledges, rock walls, overhanging ledges, or high places where a snake might be resting. A bite by a large poisonous snake on the head, shoulders, or trunk is nearly always fatal.

7. Do not jump across streams or ditches unless you can see a good-sized clear spot on which to land.

8. Do not sit on stumps, fallen trees, rocks, or stone walls without looking over the spot and its surroundings.

9. If it is necessary to pick up small flat objects by hand, wear gloves. Stand in such a position that a snake could not strike at your feet and legs. In picking up a log, long boards, length of pipe, or pole, do not lift them up from the center. Go to the end of the object, where you can see both sides. Use a stick to clear away any debris. And then lift.

10. Never use hands, particularly bare hands, if a tool is available. When handling straw or grass cuttings, it is safer to use a pitchfork.

11. Never put your hands into a hole in the ground or a hollow log. These are ideal shelters for snakes. If you must investigate, use a long stick, and poke gently. If anything alive is inside, you'll soon find out.

12. If you're camping out, it's best to sleep in the car or truck. Keep the doors closed and the windows three-quarters closed. If you must camp on the ground, set up a mosquito bar, and tuck the

netting well under the bedding. Avoid camping where there are brush piles, rock piles, or wood litter. Gathering firewood after dark is risky, even with a strong flashlight. You cannot see all around the places where you put your hands.

13. Linemen checking poles should look over the ground around the pole before ascending. When descending, look around before taking the last step to the ground.

14. When digging, pay attention to burrows and holes made by small animals. When the temperature gets above 90 degrees, snakes like to go underground to escape the heat. In late fall or early spring they may retire there to escape the cold.

15. Even a dead snake can be dangerous. A freshly-killed snake may show a belated reflex action. The head may be completely severed from the body and still be dangerous. As long as there is venom in the gland and the fangs are attached, venom can be discharged.

Keep your eyes and ears open! Moccasins, copperheads, and coral snakes have no rattles, so you must depend on your eyes. Small rattlers make very little noise. And with the larger snakes, the rattles may have been broken off, may be wet, or under a coil, and no warning may be audible. Or the creature may not choose to sound his rattle.

A snake can strike, recoil, and be ready to strike again in one-half second, which is faster than you could cock, aim, and fire a repeating rifle.

Snakes strike mostly at moving objects. The best thing to do is to stand still and take stock of the situation, which isn't easy to do under such circumstances. The snake is just as scared as the man, but that doesn't make the reptile any less dangerous.

Snakes can't hear, so it won't hurt to call for help. However, they have keen eyesight and are sensitive to ground vibrations. A snake's attention is usually focused on the feet and legs, and slow movements of the head and arms may not be noticed. If you are out of range, you can make a getaway. A snake won't chase you, and its maximum speed is three miles per hour.

If you are within range, no method can be guaranteed. The only solution is to wait until the snake's attention is distracted or he decides to move away. This requires patience, steady nerves, and a strong heart.

Protective Clothing

Shirts and trousers of khaki, such as issued to the armed forces for summer field use, make excellent work clothes. These withstand most small insect bites and are relatively cool in spite of their weight.

To protect arms, keep sleeves rolled down. Activity permitting, trousers should be worn loose and outside the boots. Trouser legs make a wider target area than a leg, and there is a chance the snake may miss the flesh when he strikes at the cloth.

Gloves. Leather work gloves,

the heavier the better, and preferably with a gauntlet cuff, offer good protection against coral snakes, black widow spiders, scorpions, and insects. These gloves should be worn when handling brush and objects near the ground. Loose gloves are better than tight-fitting ones.

Snakeproof boots of extra-heavy bullhide leather will withstand the strike of a poisonous snake without puncturing.

Snakeproof pants are only slightly heavier than duck cloth. They are lined around the legs and above the knees with fine monel wire mesh. An additional lining between the mesh and the leg gives three thicknesses of duck and one of wire.

Snakeproof leggings are made of two pieces of heavy canvas lined with monel mesh. They are 20 inches high in front and are secured by adjustable straps and buckles.

Surveyors' boots with soft uppers do not offer complete protection. However, several pairs of heavy wool socks will help.

In water and swampland where cottonmouth moccasins are found, workmen could wear oversize rubber boots with two or more pairs of long, heavy wool socks.

In northern climates where snakes are smaller, heavy canvas leggings worn with high shoes will give good protection, particularly if worn over heavy wool socks and with the trousers on the outside. When selecting protective clothing, remember:

1. Fangs of grown snakes (except the coral snake) range in length from ¼-in. to 1-in.
2. A snake strikes at an object and stops on contact, sinking his fangs ¼-in. to ⅜-in.

Emergency Equipment

A snake-bite kit is an essential piece of life-saving equipment, which should be carried constantly on the person. Best place is a pouch on a belt. The kit will do no good in a car parked some distance away. Rattlesnake venom is quick and powerful. Paralysis of the legs sets in quickly, and the intense pain clouds judgment. Death may occur within a few minutes, or after several days, depending on the type and amount of venom injected.

Portable kits should contain:

1. Lancet to make incision which will establish drainage.
2. Tourniquet to restrict spread of poison.
3. Suction device to draw out venom. The suction device is the first consideration in selection of a kit. Three types are used in portable kits:
   (a) Automatic reciprocal action type (spring activated).
   (b) Rubber bulb type.
   (c) Manual syringe type.

Most kits also contain an antiseptic, adhesive bandage, and ammonia inhalant for treatment of shock.

Techniques of treating snakebite will be found in many manuals. Wherever snakes are a hazard, practice should be included in first aid refresher classes. With grape juice, red nail polish, and modeling clay, a realistic demonstration can be staged.

A comprehensive and practical work on this subject is the National Safety Council's *Snake Bite Manual*, which has been used freely in preparation of this article.

Hides

—*From page 46*

been installed in all "wet" departments, so bits of flesh and hair can be flushed away neatly and quickly.

As further protection, all wet department workers must wear cleated, heavy-duty, rubber boots. Where possible, rubber mats have been installed in immediate work areas. Now an injury triggered by a slip or fall has become a plant oddity.

Slick, cluttered floors are further avoided by an intricate system of sunken, covered canals that run beneath each fleshing machine. Fleshings channeled to a certain point are pumped to a shaker screen, limed, and dropped into a gondola car. Six railroad cars can operate in the firm's modern loading quarters.

The company uses all by-products. Hide hair is separated by revolving screens, then washed and conveyed to a dryer.

Even the paint brush is a key safety factor in the company's plans. Any part of equipment or machine that might create a hazard displays highlights of vivid orange as a constant safety reminder. All activation and cut-off switches, machine guards, protruding cart handles, and other devices have fresh coats of paint.

Medical care, always one of the organization's special considerations, features: a full-time nurse and modern first-aid department; a daily visit from the company doctor who remains "on call" at all times; polio and flu vaccines available and administered at cost; a thorough pre-placement physical with a scheduled follow-up check for existing conditions, such as heart trouble, hernia, bad back, and other disorders, so individuals can be properly placed according to their physical capabilities, or referred to their own doctor for special treatment; and a unique color code system on each employee's health record file to indicate at a glance his general health, physical impairments, and specific job limitations.

Again, the tannery's story cannot be told strictly in terms of efficient machinery or sound safety practices and procedures. Important from the start has been the combined attitude of personnel. To fan this attitude, management has asked for suggestions from every department on how to increase safety and production. Suggestions are then evaluated by a board of management and employee representatives. For added incentive, special awards go to those employees whose suggestions are adopted.

Year	Ind. Cost of Comp. Ins. Per $100 of Payroll	Rueping's Cost of Comp. Ins. Per $100 of Payroll
1951	1.25	.92
1952	1.32	.87
1953	1.32	.87
1954	1.30	.65
1955	1.30	.57
1956	1.38	.58

The result? The concern has relied almost exclusively on the ingenuity of its own personnel in outfitting the plant with a *new look*. Consulting engineering firms have been called in on few occasions, even though renovation efforts have touched all corners of the tannery in the past 14 years.

"Most important," says Frank Carney, vice-president in charge of industrial relations, personnel and safety, "our employees understand *why* a certain safety control is established or *why* a new guard is installed. Departmental employees form the nucleus of our planning committees. They are in the know!"

The company knows, too, that every hide rounded up and herded through its plant will emerge with a highly-significant brand indicating accident-free production!

Beat the Heat

—*From page 60*

promote health and comfort. A comfortable change-house helps employees adapt to prevailing seasonable temperatures before going outside.

Rest periods. Rest periods have become an established custom in industrial and commerical organizations. These speed recuperation from the effects of heat and prolong the total time of exposure to job conditions. Air-conditioned rest rooms help this recovery.

Protective clothing. Reflective clothing and face masks protect the wearer from extreme heat exposures. Masks should be provided with filter lenses to protect the eyes.

In some jobs, ventilated coverall suits are worn. A flexible 2-in. hose attached to the rear of the suit can circulate 80 cfm. of air at 80 F. This will extend the time the employee can stay on the job.

Off the job. Not all of the employee's exposure to heat is at the work place. Two-thirds of the day will be spent in transit, at home, or seeking recreation. Since a good night's sleep is important in maintaining health and efficiency, room air conditioners have considerable value. Helping employees finance the purchase of air conditioners has been recommended.

2. Manufacturing Processes

First step toward heat control might be a survey of the amounts of heat given off by radiation and convection—from furnaces, steam pipes, cookers, and other heat producing equipment.

Change or modify processes. Sometimes it is possible to cut down generated humidity. But this is too complicated a subject to discuss here.

Mechanization. Sometimes, it is possible to change the process so the operator doesn't have to work near the heat source.

Isolation. Perhaps the local environment surrounding the process can be controlled by total enclosure, radiant shielding, thermal insulation, local exhaust ventilation, or a combination of these.

Radiant heat can be controlled by (1) reflective insulation of the emitting surface, (2) water or air jackets, or (3) fire chains which form a curtain in front of open furnace doors. Exhaust hoods overhead will remove convection heat at the source.

Radiant screening, portable or permanent, deflects up to 70 per cent of the heat load. It can be used where insulation directly over a furnace casing might cause overheating of refractory brickwork. Enclosure partitions of reflective sheeting encircle the heat source.

Openings at the bottom of the sheeting produce a chimney effect. Air flows in from the bottom and removes convection heat directly to the outdoors without the aid of fans. Smoke, fumes, and gases are swept out with the heat.

Ventilation. Windows and roof ventilators, pedestal fans to remove hot air from corners, and wall or roof-mounted blowers to suck in fresh air will do part of the job. But they're more effective in winter than in summer.

When outside temperatures go up to 100 F or more, air movement won't help, unless the relative humidity is very low. Strong currents of air moving over hot surfaces will heat up the air and make conditions worse.

Spot cooling. Jets of air on employees is one way of cooling them under extremely high temperatures. The temperature of the jet should not be more than 10 degrees below the ambient temperature and never lower than 80 F. Cooler air can be furnished by ducts from outside, from evaporative coolers, or by portable blowers designed for this purpose.

Chemical dehydration is often effective in hot, moist industries. Mechanical cooling of such atmospheres is more expensive than dehydration but is usually less desirable, because perspiring people shouldn't be exposed to dras-

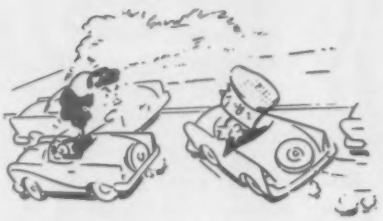
tic temperature changes of cold blasts.

3. Improving Buildings

Many newer factory buildings are designed so air conditioning may be installed at a later date. But for existing buildings, where air conditioning is not immediately practicable, much often can be done to provide more comfortable working conditions. These measures include:

1. Reflective exterior paint on roof and south and west walls.
2. Heat-absorbing and glare-reducing glass on south and west sides.
3. Insulation of roof and side walls.
4. Roof ponds for flat roofs, or resurfacing with tar and white marble chips.
5. Roof gravity ventilators and fresh-air intake blowers.
6. Awnings or louver-type screening for south and west walls.

Calendar Contest Winners For February



" ..... "

What would your Safety Saying have said?

Mrs. Mary F. DeFir, typist-clerk for the California Bureau of Vocational Rehabilitation, Coronado, Calif., won the $100 first prize in the National Safety Council's "Safety Saying" contest with this line:

Don't blame the other driver. It takes two to tangle!

The contest appears monthly on the back pages of the Council's calendar. The theme for the February contest was "Accidents Spoil Fun."

Second prize of $50 went to Miss Mary Ann Hubler, bus driver with Gilbert School District No. 45, Portland, Ore. Her entry was:

Better stop draggin' . . . or you'll start staggin'!

David Lucas of the Eastern Metal Co., Brooklyn, N. Y., won third prize of $25 for this line.

Getting "hep" to safety's rules separates the "squares" from "cools."

The 30 winners of $5 prizes are:

Miss Mary H. Hamill, Socony Mobil Oil Co., Inc., Albany, N. Y.

M. H. Wooten, Miami Transit Co., Miami, Fla.

Durward Balduf, Kisiel Die Casting Co., Batavia, N. Y.

Mrs. J. L. Wilson, Reynolds Cattle Co., Fort Worth, Tex.

Arthur L. Handley, Hdqs., Third U. S. Army, Fort McPherson, Ga.

Mrs. Lilian Riley, (Individual Member), Banning, Calif.

Miss Ramona V. Fiokes, (Individual Member), Pea Ridge, Ark.

E. Howard Tatum, Tennessee Copper Co., Copperhill, Tenn.

Orville W. Calkins, Kaiser-Aluminum & Chemical Corp., Tacoma, Wash.

Harry Applegate, Raritan Copper Works, Perth Amboy, N. J.

Reino Nygard, Great Northern Railway Co., Superior, Wis.

William Goldstein, Wheeler Electronic Corp., Division of Sperry Corp., Waterbury, Conn.

Mrs. C. E. Milligan, Boise Bus Co., Boise, Idaho

Mrs. D. W. Carver, (Individual Member), Muscatine, Iowa

V. J. Ostman, (Individual Member), Toledo, Ohio

Lee H. Schrimpf, The Texas Company, Tulsa, Okla.

Miss Marilyn Kay Hathaway, Southern Pacific Pipe Lines, Inc., Los Angeles, Calif.

Robert Mauck, State Line Generating Station, Lansing, Ill.

Mrs. Frank McClure, (Individual Member), Denver, Colo.

Mrs. Robert F. Cree, (Individual Member), West Chester, Pa.

Miss Mary Grunland, University of California, Office of the Regents, Berkeley, Calif.

Mrs. H. A. Hoover, Procter & Gamble Co. of Canada, Ltd., Hamilton, Ontario, Canada

Mrs. R. O. Babcock, (Individual Member), Kearns, Utah

Philip J. Kinsman, Hoyt Mining Co., Buhl, Minn.

Mrs. Bert Johnson, Consolidated Mining & Smelting Co., Trail, B. C., Canada

Miss Dorothy E. Sheler, Carnation Company, Albany, Ore.

F. G. Chambers, The Procter & Gamble Co., Cincinnati, Ohio

Donald Van H. Harrison, The Atlantic Refining Co., Philadelphia, Pa.

Gerald Burman, Alpha Portland Cement Co., LaSalle, Ill.

Norman Delahunty, Commercial Products Division, Atomic Energy of Canada, Ottawa, Ont., Canada

Around the Compass

—*From page 66*

eight months.

The retiring president was the recipient of the Council's individual citation award for accident prevention. The award, a "citation for superiority of effort in safety," was presented to Crowder "for his exceptional executive service."

The award was announced by Harold A. Seward, Bethlehem, executive secretary and treasurer of the Council. Mr. Frantz made the presentation.

Detroit Uses Expressway Leaflet

More than 750,000 two-color leaflets on expressway driving were distributed in Detroit, Mich. in February by the Yellow Pages Directory Department of the Michigan Bell Telephone Company.

The leaflets included official Detroit expressway maps and safe driving expressway rules illustrated by entertaining and educational cartoons.

This project is part of an expressway safety program whose theme is: Be an ACE driver—Alert, Courteous, Expressway driver.

Management Clubs Source of Local Help

In about 200 cities, there are Industrial Management Clubs which are affiliated with YMCA's. These clubs are composed of industrial supervisors and they can be an important source of help to local safety councils not only in plant safety work but also in public safety activities. YMCA secretaries will be able to provide information on these clubs.

Safety Briefs

The Central States Safety Conference was held on April 9, 10, and 11 at the Hotel Chase in St. Louis, Mo. The Conference is under the auspices of the Safety Council of Greater St. Louis, the St. Louis Chapter of the ASSE

and cooperating organizations.

The Foremen's Training Course in Industrial Safety conducted in February by the Minot (N. D.) Safety Council was attended by more than 50 construction foremen. Paul Drew and Lee Miller of the state Workmen's Compensation Department conducted the class.

On March 23 a series of 13 television presentations was launched in Jacksonville, Fla. on the safety activities of the Jacksonville-Duval County Safety Council. The program will be on alternate Sundays from 2:00 to 2:15 p.m. It is planned that the shows will be live but films and exhibits will be utilized.

The Metropolitan Safety Council of Denver, Colo. held its first annual conference on March 17. Approximately 500 persons attended the banquet meeting which was addressed by Maj. Gen. George C. Stewart, executive vice president of the National Safety Council.

The medical profession and the safety council in Benton Harbor and St. Joseph, Mich. are cooperating to establish a Poison Control and Treatment Center in the Twin Cities Area.

The new president of the National Automobile Dealers Association is Dean Chaffin of Bozeman, Mont. Mr. Chaffin has been the president of the Montana Council for Highway Traffic Safety. He was succeeded in this position by K. P. Todd, vice president and general manager for Montana of the Mountain States Telephone and Telegraph Co., Helena.

The 14th Annual Motor Fleet Supervisors Course will be held from June 2 to 6 at Northwestern University's Traffic Institute, 405 Church Street, Evanston, Ill.

During the past nine years, the Syracuse N. Y. Safety Council, which is a division of the Syracuse Chamber of Commerce, has received 22 awards from the National Safety Council for many outstanding achievements in traffic safety.

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*Temporary Address

Textile Plants

—*From page 21*

and less than one-third of the small organizations, work stands are of permanent construction.

8. Safety departments in almost all large mills control independent contractor workers, who must observe all company safety rules and obtain permission before beginning hazardous work.

Among small factories about half of those commenting say the safety department has control over workers employed by independent contractors. More than two-thirds of these plants require contractors to observe all safety rules. More than half the reporting mills make permission mandatory from the safety department before a worker can start a dangerous project.

Codes and standards. The safety department in most answering plants checks all machines and equipment in accordance with state laws or regulations, ASA provisions, and/or other standards or rules . . . usually monthly and in this order of preferred inspection. A minority of small plants makes a monthly inspection of machines and equipment by other than state or ASA standards.

Many reporting plants indicate other employees and departments (sometimes more than one category of personnel), in addition to the plant safety department, also scrutinize all machines and equipment to conform with state, ASA, or other safety provisions. Examinations are made by the plant management, corporate safety department, insurance representative, plant superintendent, engineer, maintenance workers, safety committee, outside fire department, supervisors, or the state factory inspector.

Purchasing policies. The questionnaire probed whether plant safety departments have a policy with the purchasing department to consider safety in all buying transactions. These chiefly concerned machinery, electrical equipment, solvents or chemicals, hoisting equipment, and other production elements. Most plants

said they *do* have such a policy.

Customarily, a copy of the purchase requisition or request notifies the safety department about prospective purchases. Letters, reports, inter-office communications, consultations between the purchasing department and safety director assist this policy.

In one case, the safety director signs all job orders and purchase requisitions on items not in standard usage. In another instance, purchases involving safety are reviewed by the safety department.

Checking plans. Most plants say the safety department goes over safety requirements and procedures involving specifications for new machinery, new or modified processes, new layout or arrangement, new buildings, alterations, and additions, without regard to cost involved in purchases. One plant indicated the safety department steps in only where the cost of the project is more than $100.

Usually, checking is handled by the plant safety engineer or someone with definite safety responsibility in the plant. A number of mills say these requirements and procedures are examined, safety-wise, by personnel in the mill without specific safety responsibility. These employees include the plant engineer or superintendent, maintenance department workers, or the chief engineer.

Illumination. Eleven large and 27 smaller mills state they have made meter measurements of light intensities at work positions and in other plant areas. However, one large plant and seven small factories definitely state they have *not* done this.

Ten large plants and 20 small units say these light intensities, as determined by light meter, conform to recommended footcandle values for illumination specified by ASA's American Standard Practice for Industrial Lighting (A-11.1, 1952).

In general industry accidents linked to inadequate or poorly-designed lighting may run between 15 and 25 per cent. In contrast, effective illumination increases production, makes for high observational efficiency, pre-

vents industrial accidents, and boosts employee morale.

Air contamination. A minority of plants produce toxic gases, vapors, mists, or dusts in their operations. These substances are mechanically exhausted at the point of origin for control of possible harmful effects through breathing or as nuisance, fire or explosion hazards or irritants.

A majority of large plants and minority of small factories have conducted workroom air analyses in work areas to find contaminants and to determine whether their maximum allowable concentrations are exceeded. Agencies making these studies include various combinations: State only, insurance carrier only, state and insurance carrier, state and company management, company management only, and company management and insurance carrier.

Frequencies at which these studies take place in large plants are: Annually, where the examination is made by the state only; and monthly in four plants where studies are made separately by company and state. Six of eight small plants answering now make these analyses at frequencies ranging from annually to constantly.

Inspection. At 10 large plants and 31 small operations, the safety department inspects all exits, walkway surfaces, lighting, stairways, and handrails to comply with state rules. Five large plants do this semiannually at the least. In 20 small plants inspection is held annually or more often (with 11 small mills making this check monthly). Safety departments in 10 large factories compare these facilities with standards other than those of the state, NFPA, or ASA.

These standards, in almost all large plants and in a majority of small units, in addition to examination by the safety department, also are checked by other plant personnel (sometimes by more than one category of employee). These include: Plant management, the insurance carrier, outside fire department, engineer, supervisor, state, safety committee, plant

superintendent, maintenance, and master mechanic.

One safety department director in New Jersey said clean-up time is a part of the mill's daily work schedule, with the engineering department providing a sanitary squad for the entire mill in general areas.

Foremen are responsible for housekeeping, including dust accumulation, in their departments almost universally in the plants surveyed. Clean-up men and workers maintain their work places in 9 large mills and 26 small plants.

In half of the plants floor markings indicate all aisle widths, and storage areas are shown by strictly-observed floor designations, railings and partitions.

Noise control. A minority of plants made surveys—usually through outside agencies—to determine whether any injurious noise exposures existed. Only three of 11 operations surveyed revealed some level of injurious noise. In one plant having such a difficulty, noise involved all operations where clanking gears came together. Installation of nylon gears and bearings minimized noise exposure.

Weaving operations provided injurious noise levels in another plant. Corrective action resulted in mounting looms on pads, alternating the pick of the loom, and wearing of ear protectors by workers.

Isolation of noisy processes is another example of built-in environmental safety.

In a few plants audiometric tests, given to new employees, find at the time of hiring whether workers have existing hearing defects. These tests also uncover the frequency bands in which defects occur and the extent of hearing deficiency.

(One large and one small plant give periodic hearing tests to workers to discover the nature and extent of any hearing defi-

ciencies which might develop. The small plant gives these tests annually to all workers).

Tool control. Half of the small mills and 10 of 12 large plants use a centralized tool control system. About the same proportion make periodic inspection of all company-owned hand tools. A few plants have such an inspection for worker-owned hand tools. Inspections vary in frequency from each-time-used to as-needed, and are conducted chiefly by tool crib personnel.

In some cases a master mechanic or maintenance man, foreman or supervisor, inspection committee, safety man, or plant superintendent makes the tool examination.

Periodic inspection of portable power tools is made in all large plants reporting and in a majority of small mills. With the exception of one large plant this examination includes a grounding provision for metal casings of tools to safeguard workers from electric shock during use. Most popular inspection frequencies were each-time-used and monthly.

Tool control personnel and foreman or supervisors conducted most inspections, with—in the case of smaller plants—maintenance personnel and master mechanic next in order of those checking.

A majority of large plants and less than half of the small plants returning questionnaires maintain a history of all hoisting chains, hooks and cables. All large plants and about two-thirds of the smaller mills generally inspect this equipment before, after, or when used. Variations extend to periodical or occasional reviews.

Ladders. Eight large plants and 25 small factories indicate all ladders used conform to the American Standard Safety Codes for ladders: A14.1-1952; A14.2-1956; and A14.3-1956.

Seven large and 11 small units keep a history of all portable ladders. A majority inspect their ladders periodically.

Ladders are examined monthly by almost half of the smaller

plants, but large mills reporting listed a spread of inspection frequencies from monthly to each-time-used. Larger operations said the supervisor or foreman usually checked ladders, while small factories indicated tool control personnel or maintenance department workers did the inspecting.

Other checking combinations were: Safety department, safety department and mill maintenance, safety department and foreman, safety committee, inspection committee, maintenance, carpenter, and shop overseers, with a few plants stating other individuals made inspections.

Eight smaller mills destroy and replace defective ladders. Most of these plants repair or destroy them. Ordinarily, the repair shop, maintenance department, or carpenter makes the decision on repairing or destroying.

A majority of large plants and less than half of the small units use portable metal ladders. The majority of plants restrict their use to eliminate exposure to electric shock. In 13 plants electricians do *not* use such ladders.

Most plants use portable work stands. The majority of large mills and less than one-third of the smaller organizations have work stands of permanent construction. Seven large plants and 10 small operations inspect and mark planks used for work stands or scaffolds. This procedure makes certain that sound lumber of the proper type, quality, size and strength is used.

Frequency at which scaffold, work-stand planks or portable tubular scaffold members are inspected varies from each-time-used to occasionally. Visual judgment is the most commonly applied rule-of-thumb to prevent over-loading of work stands.

Fire protection. With one exception all of the large plants and 15 small factories require a "burning permit" issued before welding work. About half of the larger mills and eight smaller operations issue permits through the safety department or (in the case of large plants) the plant fire chief.

Most plants in this field use flammable solvents. A minority of these mills make explosimeter

tests in work areas to insure that vapor concentrations are kept below the lower explosive limit.

In the 15 plants where explosive dusts are generated, accumulations are removed regularly from floors, walls, ledges, and overhead. This is usually accomplished by men in the department or area or in many cases by regularly-assigned employees. In the majority of plants without dust explosion hazards, regularly-assigned employees and custodial workers systematically clean up dust.

The safety department in a majority of plants inspects fire protection equipment, chiefly on a monthly to semiannual basis, for compliance with standards of NFPA, Associated Factory Mutual Fire Insurance Companies, state and local authorities.

In most plants agencies *other* than the safety department *also* check fire protection equipment to conform with safety provisions of the NFPA and other agencies. Inspecting groups include the insurance company or state, and the corporate safety department, plus various company personnel.

A minority of reporting plants have a fire department of full-time paid firemen. However, most large factories have a fire brigade of specially-trained workers, hold regular fire meetings, and have fire drills. The majority of small mills, while maintaining trained worker fire brigades, do not have regular fire drills or meetings. Fire meeting schedules range from weekly to semiannually.

Outside contractors. Industrialists generally recognize the necessity of requiring an outside contractor who may do work in the plant to conform as closely as possible with requirements of the plant safety program.

Where welding is done in connection with contracting operations in areas where there may be exposure to flammable vapors or liquids, explosive dusts, etc., plant safety control over these operations is obviously imperative.

Protection of plant employees by providing adequate barricades and enclosures is important. Also worth consideration is safety control over the hazards of: Trenches or ditches in plant areas; exposure

of plant processes to foreign material resulting from a contractor's operations; use of a contractor's trucks and other vehicles on plant premises; and other contractor activities.

To protect their own employees, operations, and production facilities, many large plants include in the contract a provision that the contractor's operations and personnel shall comply with the same safety and conservation requirements that govern employees of the plant. The provision further stipulates the plant safety department and safety rules shall control activities of the independent contractor's workers.

A majority of the 49 plants make the independent contractor observe all plant safety rules and require him to obtain permission from the plant safety department before beginning projects involving special hazards.

This inventory discloses 11 of 12 large plants and less than half of small mills demand the safety department have control over workers of independent contractors.

Pertinent to this survey, accident records for the 49 plants show: Average frequency rate for the large mills, 1.58, and for the small plants, 5.11; severity rate for the large plants, 131, and for the smaller operations, 110.

TVA

—From page 25

a special safety-training program was initiated for all employees who handle, store, transport, load, and fire explosives, and to prevent unauthorized persons from doing any part of the work required in blasting operations.

Since this program has been in operation, two employees have been killed and two seriously injured by explosives, as contrasted with six fatalities prior to 1944.

Driver training. Improvement in the vehicular accident experience is attributed to all elements of the safety program, which include: A monthly, six-page vehicular safety bulletin now in its 23rd year; good maintenance of vehicles; discussions of traffic safety in safety meetings; thorough inves-

tigation of serious accidents; a good reporting and records system; use of National Safety Council standards in respect to chargeability; an examining and training program for drivers on a voluntary basis and based on American Automobile Association standards; and assumption of responsibility on the part of drivers and their supervisors.

Regional water safety. Having created many lakes with a total shoreline of more than 10,000 miles, TVA conducts a water-safety educational program in cooperation with the American Red Cross, the U. S. Coast Guard, the Water Safety Congress, and other interested organizations to prevent drownings and other water recreational accidents throughout the area. Since a reporting system was established in 1941, the number of drownings on these lakes has increased from an annual average of 31 during the five-year period (1941 to 1945) to 59 for the five-year period 1952 to 1956.

However, rapid annual increases in use of the lakes for boating, swimming, and other recreational purposes have produced decreasing frequency rates. For example, in 1941 there were 4.7 drownings per 1,000 boats as compared with 1.6 in 1956.

Fire prevention. TVA is prepared to fight fires involving its properties in methods similar to those of municipalities and industrial plants, but emphasis is placed on the prevention of fire through inspections of properties and educational efforts with employees.

Through 1945 the annual fire loss averaged about $54,000 a year with a total of three persons killed by fire. Since 1945, the loss has averaged about $24,000 a year with one fatality, in spite of greatly increased property values.

Education—the primary approach. TVA's safety program is built on the principle that responsibility for elimination and control of hazardous conditions and practices rests with the management organizational unit conducting the work. Safety engineers help management carry out that responsibility primarily through consultation, communication and

education. By keeping close touch with project managers, superintendents, and other supervisors and foremen, safety is made an integral part of production planning.

On construction projects and other of the more hazardous jobs, monthly foremen's safety meetings and weekly crew safety meetings are conducted by supervisors. Monthly safety bulletins for all employees on these jobs, and weekly foremen's safety bulletins, are prepared by the local safety office. Such meetings and bulletins have been vital elements in the success of the safety program since the early years of the Authority.

Extensive use is made of safety educational materials of the National Safety Council, such as posters, films, newsletters and magazines. Good use is made of safety standards, codes, and safe practices developed by recognized national authorities, such as the American Standards Association. All accidents are investigated, and all disabling injury accidents are written up in detail so the information can be useful to all safety engineers and others in prevention efforts.

The Safety Branch believes that the informality and ease of two-way communication between safety engineer and employee has been most important.

National Awards. Since 1950, TVA's Division of Construction at seven steam plants under construction have earned and received from the National Safety Council 7 Awards of Honor, 12 Awards of Merit, 1 Certificate of Commendation, and 1 President's Letter for outstanding safety performance. Also since 1950, other construction projects have earned 1 Award of Honor, 2 Awards of Merit, 2 Certificates of Commendation, and 3 President's Letters.

Between 1950 and 1956, the Office of Chemical Engineering earned 3 Awards of Merit and 1 Award of Honor. The Divisions of Power rated Awards of Merit in 1954 and 1957. TVA, as a whole, earned Awards of Honor in 1953, 1955, 1956, and 1957. In 1956, TVA received the President's Federal Employee Safety Award.

Also since 1950, TVA's open-pit phosphate mining operations were awarded two certificates by the Joseph A. Holmes Safety Association, U. S. Bureau of Mines, for working more than a million man-hours for several years without disabling injuries.

In 1954, TVA received a plaque from the Water Safety Congress in recognition of outstanding effort to prevent needless water accidents and drownings in the Tennessee and Cumberland Valleys. TVA's water-safety film, "Water Wisdom," won top honors (bronze plaque) in the 1953 contest conducted by the National Committee on Films for Safety, affiliated with the National Safety Council.

On three occasions, three large units were given 100-Percent First Aid Training Certificates by the U. S. Bureau of Mines, acknowledging that all employees completed a first aid course within a year.

Dry Mop

—From page 36

means at least every eight hours. In some cases, where oil from machines or other soilage is a constant problem, oil absorbents may be needed or machines and operating methods should be examined.

Additional tips. Never stroke with a mop. Keep it on the floor.

On wide stairs, begin at the bottom. Sweep one side toward the center. When you reach the top, sweep dirt from the opposite side toward the center and then down to the next step, leaving the entire step clean. This is an efficient method and leaves half the stairway open for traffic.

To remove gum, small pieces of dough, and similar material from the floor, use a wide-blade putty knife.

Wire

—From page 17

pational safety program, and must include all of the off-work hours of the day including time spent in traffic, recreation, and at home;

3. Support must be given to existing civic safety groups or to the organization of new ones;

4. The Secretary of Labor should convene a conference to formulate a safe program of rocket safety and space age developments (including amateur rocketry);

5. More effort should be made to interest the vast segment of firms and workers that has not been reached in safety work, particularly through the organizations to which such firms and workers belong;

6. Science, industry, labor, insurance, and all levels of government must cooperate in order to control injuries from radiation;

7. Use should be made of enabling state legislation authorizing promulgation of regulations which serve as standards of safety or limitations of design;

8. There is urgent need for increased attention to the preventive medical aspects of accident control.

The Conference's general conclusion was "that safety is indivisible and all-encompassing. Nothing less than *total safety* can do the job."

Industrial Safety. Congress passed, and sent to the President for action, S. 1386 (as amended by the House) to authorize the Interstate Commerce Commission to prescribe rules, standards, and instructions for the installation, maintenance, and repair of power or train brakes. This bill was requested by the ICC, supported by labor, and opposed by the railroads.

Its Congressional sponsors and the ICC say that its only purpose is to deal with safety brakes, and not in any manner with the length of trains. As to this latter matter, the Congressional Committee's report said "The relationship of train length to safety is a matter for separate consideration." The bill provides that the ICC shall adopt as its regulations the present code of the Association of American Railroads.

The ICC issued a new statement on its policy and procedure in the investigation of railway accidents. The ICC also gave notice of its intention to amend its regulations relating to warning signal devices for motor carrier brakes. And in a Motor Carrier Accident

Investigation Report, the ICC said that "it is imperative" that firms "devote careful attention to the selection of persons with competence and sound background to drive such vehicles." The Commission warned of its intention "to insist upon recognition and acceptance of this obligation by every motor carrier subject to our safety jurisdiction."

A Senate subcommittee concluded hearings on S. 3290, to extend the provisions of the Federal Coal Mine Safety Act to all mines, irrespective of the number of employees. (See "Wire," April 1958) The Federal Coal Mine Safety Board of Review rendered a decision that if excessive methane gas is found in a mine, even if the source was outside the mine, the mine must thereafter at all times comply with the statutory safeguards pertaining to gassy mines.

Hearings were held on S. 3486, to amend the Longshoreman and Harbor Workers Compensation Act, to authorize the Secretary of Labor to promulgate and enforce safety standards. (See "Wire," April 1958)

The U.S. Public Health Service established a Division of Radiological Health, to provide technical assistance to state agencies dealing with medical, industrial, and other activities involving public exposure to radiation. The Post Office Department announced that it proposed to adopt further restrictive rules with respect to the mailing of radioactive materials, effective May 15, 1958. Comments on the proposed rules were invited.

The U.S. Department of Labor has prepared a 93-foot-long exhibit, titled "Labor-Management Cooperation for Safety," designed to portray American interest in worker safety and to display United States-made safety devices. The exhibit will be sent through the non-communist countries of the Near and Far East, under the auspices of the International Cooperation Administration.

Highway Safety. To the first of the 1958 regional conferences of his Committee on Traffic Safety, the President sent a message that

"every state, county, and local official with responsibility for traffic control must have organized citizen support." He urged support and leadership for safety programs.

The Congress passed, and sent to the President for approval, H.R. 9821, to accelerate the Federal-aid Highway Program. The final form of the bill provides for a 1/2 of 1 per cent bonus in federal interstate highway funds to those states that regulate billboards along the Interstate Highway System. Four types of signs are permitted.

The Roberts Subcommittee on Traffic Safety in the House had a busy schedule of hearings. It concluded hearings on H.J. Res 221 (Beamer), to grant Congressional consent to states to negotiate and enter into compacts for the promotion and carrying out of highway traffic safety. This bill was endorsed by the American Association of Motor Vehicle Administrators, the American Association of Casualty and Surety Companies and the National Safety Council.

Hearings also were concluded on H.R. 9368 (Schenck) to prohibit the use of motor vehicles which discharge unburned hydrocarbon in an amount found by the Public Health Service to be dangerous to human health. In hearings on this latter bill, witnesses testified as to the relation between automobile exhaust and cancer. In this connection, Dr. John H. Heller, director of the National Cancer Institute of the U.S. Public Health Service, testified in an appropriation hearing that there is "grave suspicion that excessive concentrations of automobile exhaust . . . will produce cancers in the human."

The subcommittee also held hearings on a proposal by the broadcasting industry for a closer coordination between the industry and the highway patrol networks in the matter of disseminating weather and road conditions to motorists traveling in radio-equipped cars. Another hearing was scheduled for a panel discussion of the need for funds for research in the field of traffic safety.

The Supreme Court of the

United States ruled that fines paid by interstate motor carriers for violations of state maximum-weight laws are not deductible under the federal income tax as "ordinary and necessary" business expenses. To allow such deductions, said the Court, "would frustrate sharply defined state policy . . . to protect their highways from damage and to insure the safety of all persons using them," and would encourage violations. It made no difference whether the violation was wilful or inadvertent, the Court ruled, since the state law made no such distinction.

Aviation Safety. "Something is radically wrong" said a member of Congress who urged creation of a special committee to study reasons for military and civilian air accidents. Another Congressman said that recent air collisions are sad reminders "that many air safety problems remain to be solved." In another connection, the Secretary of Commerce said, "Our aim is to make flight safe and sure."

The Air Force ordered an investigation to determine means to "insure maximum safety" in flights carrying bombs. This grew out of an accident involving a plane bearing a nuclear bomb. Top-level commanders have been ordered to determine if there is any further action which should be taken to insure "the maximum safety" of Air Force operations.

The Civil Aeronautics Board gave notice of its intent to amend the regulations concerning the retention and reservation of safety records of air carriers. Its purpose is to assure the availability of records to enable CAA and CAB to carry out their responsibilities of safety regulation and investigation.

Marine Safety. The House Committee held hearings on H.R. 11078, the boat safety bill designed to promote boating safety and provide for a Federal-State system in the field. (See "Wire," March 1958) The bill was endorsed by the Coast Guard "with minor exceptions."

The Coast Guard revised its regulations governing access to or release of information from

marine safety records (vessel inspection, merchant marine personnel, marine investigations, and suspension and revocation proceedings).

The required number of nations having ratified its convention, the Intergovernmental Maritime Consultative Organization will soon formally come into being as a specialized agency of the United Nations. Part of its organization is a maritime safety committee. All powers under the 1948 International Convention for the Safety of Life at Sea will be transferred to this new international agency.

Farm Safety. The President proclaimed as National Farm Safety Week the week beginning July 20. He urged all farm families and "all persons allied with agriculture to join the continuing campaign to prevent needless accidents."

School Safety. The U.S. Office of Education warned that "students should not experiment with rockets and other missiles unless such activity is as rigidly controlled and expertly supervised as are experiments by rocket scientists and engineers." The Office of Education suggested specific rocket safety rules for schools and parents, and also issued a selected bibliography of recent publications in this field for high school students and teachers.

Industrial Health

—From page 68

records to include a personal radiation exposure record.

Industries which now have a radiation problem already maintain occupational radiation exposure records. Others should be able to develop reasonable estimates of the gonad doses received during various x-ray examinations in their own departments by comparing their techniques with published reports.

Employees of the Oak Ridge National Laboratory are given a wallet-sized card which lists on one side pertinent medical information, such as blood type, Rh-factor, immunizations, etc., and

provides on the other side space for recording various roentgenographic examinations. Each worker is asked to record exposures made by his private physician or hospital. The following year this information is taken from his card and using the "average" dose estimate for individual examinations, the total dose is determined and added to the exposure record. It is believed that a reasonably accurate record can be maintained in this way.

Health Education

—*From page 33*

grams, but I feel that inclusion of health education in the regular established safety program will cause the least amount of confusion and upheaval to both company and employees, and this method of getting health education across to the employees should certainly be considered regardless of organizational structure of the company and workers.

In tailoring health education programs to fit the individual needs of the company and its employees, there are available—through your local county cancer units and heart and polio units—suggested programs, speakers, visual aids, and a wealth of other educational material which can be had for the asking and which can be put together by the volunteer and paid workers in these units to fit exactly what you or your company may wish to have. These paid and volunteer workers, especially those in the cancer units, are most eager to cooperate in this health education effort and will set up the programs so as to conflict to a minimum with the total operations of a company. As an example, we have run cancer education programs at the Halifax Paper company as early as 6:00 a.m. and as late as midnight. We have scheduled these programs for as few as eight people and for a hundred or more. In other words, tailoring programs to fit your company's individual situation is no great problem to your health agencies.

One other step we have taken in cancer education is to extend this education to wives and other dependents of our employees. This was started last year and, though the response was not conclusive, it was certainly encouraging and we plan to continue it. We rented an auditorium in town to overcome any reluctance the employees' wives may have had to attend meetings on company property, and we extended the invitation to include "a neighbor or friend." These meetings proved to be an aid in the company's community relations.

We are convinced that health education is a necessary and justified part of our employees' total training and education. From our experience, we believe that health education can be more economically included in the regular established safety programs. We believe that health education can be economically as well as morally justified as a part of a company's normal obligations to its employees.

And finally, we believe that inclusion of health education in

over-all employee training aids in community relations, especially when wives and dependents are included.

Incidentally, last year the paper industry's injury frequency rate was in the neighborhood of 9 per million man-hours worked; Halifax Paper Company's was 6.5.

MSA Acquires German Plant

Mine Safety Appliances Company of Pittsburgh, Pa., has purchased a controlling interest in the Auergesellschaft Aktiengesellschaft (Auer Company, Inc.). The firm is one of Europe's leading manufacturers of safety equipment.

The sale, made by Degussa, Frankfurt/Main, to MSA covers the entire manufacturing facilities of Auergesellschaft located in West Berlin and Schwäbisch Gmünd.

Auergesellschaft manufactures a complete line of gas masks, carbon monoxide and dust respirators, inhalators, and oxygen breathing apparatus. The company is one of the oldest producers in Germany of gaslight equipment. It also manufacturers luminous chemicals and x-ray accessories.

Last year the MSA company established new subsidiaries in Mexico and Venezuela. For many years it has operated subsidiaries in Canada, Scotland, and South Africa.

Together with its U. S. subsidiary companies, MSA operates four plants, three research centers and 71 sales offices and warehouses throughout the United States. The company manufactures more than 3,600 safety products for mines and industry.

The Auer Company was founded in Berlin in 1892 by Dr. Carl Auer von Welsbach, inventor of the Auer incandescent gas mantle.

Ninety per cent of the Auer plant was destroyed during World War II. Today the plant is relocated and employs approximately 800 people.

Auer will operate as a subsidiary company under MSA's Mining-International Group headed by Vice-President C. M. Donahue.

Consultation Corner

—*From page 8*

details. An instrument using the same principle has been devised by two scientists with the B. F. Goodrich Company in Akron, Ohio. It reads ozone concentrations of less than one ppm.

If concentrations are found to be high, self-contained breathing apparatus should be supplied for men working in the area. If the precipitator can be shut down and the work area properly ventilated the men could work safely without respiratory protection.

One of the old standard chemical methods used for the determination of ozone requires a standard solution of sodium iodide and sodium thiosulfate. Five milliliters of a solution containing five grams of aluminum chloride and one gram of ammonium chloride per liter of water are added to each 100 milliliters of 2N

potassium iodide solution. It is possible that sulphur dioxide might interfere in this determination. However, unless there are other oxidizing agents present this test will work.

Another method of testing for ozone is to pass the gas through a neutral solution or through an alkaline solution of potassium iodide, acidify the solution with sulphuric acid, and titrate the free iodine with 0.1N sodium thiosulfate solution. This method is specific only in the absence of certain oxidizing agents.

If you are dealing with concentrations of 0.1 parts per million it will be necessary to sample 10 liters of air through each cubic centimeter of potassium iodide test solution before any ozone can be detected. The addition of aluminum chloride as mentioned above somewhat increases the sensitivity of this method and if ammonium chloride and aluminum chloride are used, the solution should not be acidified before titration.

Data Sheet

—From page 40

If felt or rubber gaskets are used to seal doors, low-temperature grease should be applied to the gaskets to prevent them from freezing shut.

44. An alarm system for personnel inside the cold room to signal an emergency should be provided to draw the immediate attention of those outside. A reliable two-way communication system in constant operation while personnel are in the cold room is one recommended facility for signaling emergencies. Another is an emergency light, horn, or bell system, actuated by a rope installed on the inside walls of the cold room in such a way that a person on the floor can reach the rope.

45. Smoking inside the cold room should be prohibited as a fire-prevention measure and because smoking makes breathing more difficult at cold temperatures.

46. Exposure limits in the cold room cannot be arbitrarily specified, since an individual's comfort will dictate to some extent the amount of time he can stand exposure. Some operators find no time limit is necessary, if cold-room personnel are in good health and properly clothed.

47. Following is a general guide to exposure limits within given temperature ranges:

LOW-TEMPERATURE TIME LIMITS

Temperature Range	Maximum Daily Exposure
30 F to 0 F	No exposure time limit, if the person is properly clothed.
0 F to —30 F	Total cold-room work time: 4 hours. Alternate 1 hour in and 1 hour out of the chamber.
—30 F to —70 F	Two periods of 30 minutes each, at least 4 hours apart. Total cold-room work time allowed: 1 hour. (*Note*: Some difference exists among operators. One recommends 15-minute periods—not over 4 periods in any 8-hour work shift. Another limits periods to 1 hour out of every 4, with a low chill factor, i.e., no wind. A third reports that continuous operation for 3 hours at —65 F has been experienced without ill effect.)
—70 F to —100 F	Maximum permissible cold-room work time: 5 minutes over an 8-hour working day. For these extreme temperatures, the wearing of a completely-enclosed headgear, equipped with a breathing tube running under the clothing and down the leg to preheat the air, is recommended.

ACKNOWLEDGMENT

This data sheet was prepared by the Engineering Methods and Procedures Committee of the Automotive and Machine Shop Section, National Safety Council. The data sheet has been extensively reviewed by members of the National Safety Council and by representatives of chapters of the American Society of Safety Engineers. It has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

MECHANIZE all Scrubbing Operations into 1

with a COMBINATION SCRUBBER-VAC!

Applies cleanser, scrubs, flushes, and picks up—in ONE operation!

(Powder Dispenser and Level Cable Wind are accessories)

Here's a timely answer to the need for reducing labor costs—*a single cleaning unit that completely mechanizes scrubbing.* A *Combination Scrubber-Vac* applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor)—*all in one operation!* Maintenance men like the convenience of working with this single unit... the thoroughness with which it cleans ...and the features that make the machine simple to operate. It's *self-propelled,* and has a *positive* clutch. There are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly.

Finnell's 213P Scrubber-Vac at left, an *electric* unit for heavy duty scrubbing of large-area floors, has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera. (The machine can be leased or purchased.) *Finnell* makes a full range of sizes, and *gasoline* or *propane powered* as well as *electric* models. From this complete line, you can choose the size and model that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that *a Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of the machine and to make periodic check-ups.

For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2205 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

Circle Item No. 112—Reader Service Card

New SAFETY EQUIPMENT

Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.

Dunking Station

Model 4-J Dunking Station is designed for use wherever fire hazards from smoking are a problem. It can be permanently mounted on walls, posts, columns, etc., in washrooms or other public places.

Since the canister cannot be lifted off a bracket, the cleaning problem is solved by furnishing a rugged, lightweight molded glass fiber inner-liner, which fits inside the heavy-duty cast aluminum canister.

The inner-liner is partly filled with water. The "smoke" is dropped in a large hole in the canister lid, and is immediately extinguished.

By flipping back the lid, and lifting out the inner-liner, the cleaning job is done. The model is available in either the deluxe polished finish or the standard black crinkle finish.

The new inner-liner fits all jumbo size canisters and is available as a separate item.

Standard Industrial Products Co., Dept. S, 920 N. Garfield Ave., Peoria, Ill. (Item 301)

Ripple Sole Safety Shoe

These safety shoes feature the popular and comfortable Ripple Sole. This sole is excellent for wear on hard surfaces, as it offers resilience and at the same time has high traction qualities.

Style R-18 is made with medium brown Quilon treated leather and is completely Dacron stitched. These features combine to make this shoe wearable under many kinds of wet industrial conditions.

Record Industrial Co., Dept. R.S., 3301 Arch St., Philadelphia 4, Pa. (Item 302)

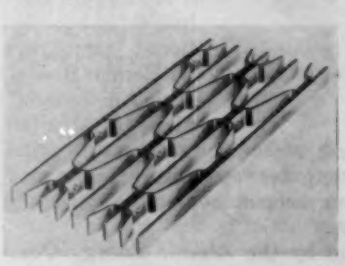
Crane Safety Switch

A Dyna-Switch for the automatic prevention of hoist and crane overloading features a lifting hook at the bottom rather than the normal lifting eye. This hook, which offers a generous throat opening, will accommodate almost any hoist or crane. Thus, the new model provides greater utility, as well as ease and speed of loading and unloading.

To protect against possible tampering or damage, a heavy metal case has also been added to all models in the Dyna-Switch line.

Easily attached to hoists or cranes, the switch cuts off all power to the motor when overloading occurs. The operator must then press the reverse switch, and return the load to the floor. He must remove the surplus weight before the pick-up can be completed. The unit can be easily set in the field to operate at any one point between 500 and 10,000 lbs. It is available with one or two adjustable microswitches to control mechanical forces at various load points. It can also be used to ring bells or operate warning signals.

W. C. Dillon & Co., Inc., 14620 Keswick St., Van Nuys, Calif. (Item 303)



Welded Grating

A 3/4 in. size grating has been added to this manufacturer's line of Gold Nugget all-welded grating. The main bar is 3/4 in. by 13/64 in., and the reticuline bar is of 12 gauge steel and 3/4 in. in depth.

This is an all-welded reversible grating, and no holes are punched.

Globe Co., Products Div., 4000 S. Princeton Ave., Chicago 9, Ill. (Item 304)

For More Information—Circle Item Number on Reader Service Postcard

Wheel Stop

A device that will find wide acceptance in industrial and railroad fields is a portable car stop called the "Porta-Stop" Wheel Stop.

The stop consists of a rugged, cast steel, rail and wheel conforming block that weighs approximately 40 lbs. But, it is easily carried by a convenient cast-in hand hold.

The block portion of the wheel stop is simply but securely positioned on the rail by use of twin, interlocking, heat-treated, alloy steel, clamp handles that join to form an endless loop about the block and rail.

Instant assembly or disassembly of the clamp is accomplished by revolving the two parts, each about 30 degrees. One block will suffice for all sizes of rails. Two sizes of clamps are available for rails up to 110 lbs. and over the 110-lb. class. One pair of "Porta-Stop" wheel stop assemblies consists of two blocks and two pairs of identical half-clamps, and weighs 120 lbs.

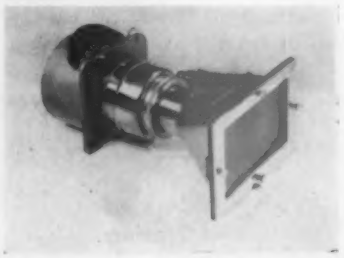
Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind. (Item 305)

Aluminum Ladders

The major aluminum ladder products of this manufacturer have been approved for listing by Underwriters Laboratories, Inc.

The company manufacturers a complete line of aluminum ladder products, including steps, platforms, straight ladders, extensions, scaffold planks and stages. To earn the UL Label, approved products must continually meet the organization's standards. UL continually examines and tests the equipment for construction and maximum safety.

Louisville Ladder Co., 1101 W. Oak St., Louisville, Ky. (Item 306)



Air Sampler Filter Holder

A larger filter holder is now optional equipment with this Hi-Volume Air Sampler. Made of stainless steel and aluminum, it consists of a mounting collar extended to a rectangular opening. The mouth, protected by a screen, accommodates 6 x 9 in. and 8 x 10 in. filter papers.

Originally designed by the Atomic Energy Commission, the sampler has been widely used by government and industry to detect and measure airborn radioactive particles, dust, smoke and smog, mine and factory air hazards and for research and testing.

The sampler quickly "inhales" an entire area—indoors or out, measuring pollutants by means of deposits on filter papers. Approximately 50 filter type papers, 4 in. in diameter, have been used in the standard filter holder. The units is readily portable and filter papers and filter holders may be exchanged in the field for continuous testing.

The Staplex Co., Air Sampler Div., 777-771 Fifth Ave., Brooklyn 32, N. Y. (Item 307)

Dry Chemical Extinguisher

A valve-in-head, cartridge-operated dry chemical extinguisher features one valve that punctures the cartridge and simultaneously provides squeeze-grip control of powder flow. This faster and simpler operation is without a shut-off nozzle.

The greater powder spread and range is accomplished by use of a "tri-jet" horn. The unit is available in 4, 10, 20 and 30 lb. models and each has stainless steel shells making them lighter and higher in tensile strength.

General Fire Extinguisher Corp., P. O. Box 263, Detroit 32, Mich. (Item 308)

Non-Slip Cleaner

"SAFTEE" Concentrated Non-Slip Floor Cleaner contains a catalyst to avoid slipping and accidents in cleaning processes.

The product cleans thoroughly, rapidly and economically by emulsifying or dissolving grease and oil, releasing dirt and grime without harm to any kind of floor or flooring that water will not harm.

The product contains no grit or acids and is non-slip when wet or dry. It may be used on all types of floors or floorings such as linoleum, cork, rubber, vinyl, marble, etc.

Shralyte Co., 1275 Main Ave., Cleveland 13, Ohio (Item 309)

Safety Glasses Side Shields

A new version of plastic and metal frame glasses is available with side shields. The wire mesh side shield addition gives full closure around the eyes, yet maintains satisfactory ventilation to prevent lens clouding.

The glasses are available in 46 x 39mm. and 48 x 41mm. eye sizes in a choice of 20, 22, 24, and 26mm. bridge sizes. F-7 shape lenses are made in clear or antiglare super-safety glass, or in clear plastic. The lenses are offered in 6.00 curve only.

The all-in-one plastic section performs double duty as the lens rim and comfort bridge pad.

Chicago Eye Shield Co., 2705 W. Roscoe, Chicago, Ill. (Item 310)

First-Aid Station

A first-aid cabinet, small enough to mount close to hazardous areas, yet large enough to hold necessary first-aid items, is especially useful where fast, immediate first-aid treatment must be given.

Each of the cabinet's doors is fitted with a positive-action catch that cannot open as a result of nearby vibration, making the unit ideal for plant use even in difficult locations. Other safety features are rounded-corner construction, one-piece doors and platform base for greater stability and cleanliness.

The unit is finished in white, baked-on enamel and is 66" by 24 in. by 12 in.

General Scientific Equipment Co., P. O. Box 3038, Philadelphia 50, Pa. (Item 311)

5th Wheel Safety Lock

This device is designed to stop accidental separation of tractors and semi-trailers caused either by driver error or mechanical failure of the coupler.

The unit is used by industrial, construction, distribution and trucking industries, or for any tractor and semi-trailer. The device securely locks the tractor and trailer as soon as the driver opens the air valve.

Models are available for air of vacuum-operated equipment, and fit both automatic and manual couplers. They are completely automatic and trouble-free in use.

Torre Safety Devices Co., Inc., 4906 Santa Monica Blvd., Los Angeles 29, Calif. (Item 312)

Explosion-Proof Floor Machine

Stowaway handles which push to an upright position to save space in storage closets are now standard on this Explosion-Proof Commander, all-purpose floor machine.

The Commander is designed specifically for safe maintenance of floors in powder factories, atomic research plants, oil refineries and other hazardous industries. The electric switch is mounted on the motor housing to eliminate wiring from the motor handle. The start-and-stop control is retained on the handle. The motor and switch are constructed, sealed and safety-tested to prevent sparks and static that might ignite explosive gas, dust, fumes or vapor. All electrical connections and fittings bear UL approved seals of safety.

The Commander is available with either 16 or 20 in. brush spread.

Holt Mfg. Co., 669—20th St., Oakland 12, Calif. (Item 313)

Piston Hand Pump

A heavy-duty piston hand pump employed exclusively to meet the exacting, requirements of military service, has now been released for general use.

The 1100 Series double-action piston hand pump has a capacity of 30 gal. per minute, pumping on both forward and back strokes. It is particularly suited to servicing heavy equipment in the highway and building construction fields.

Among the pump's many features are the double-action piston with heavy leather cups back-to-back to assure positive seal; spring-loaded, stainless steel, poppet-type valve and seats; heavy aluminum alloy housing; stainless steel interior parts; removable strainer screen; and a reversible handle which permits a wide variety of vertical or horizontal mountings.

The self-priming pump, which is capable of a vertical lift up to 30 ft., is available in four models. Included are both hose and spout types, and automatic shut-off nozzle.

Tokheim Corp., 1670 S. Wabash Ave., Fort Wayne, Ind. (Item 314)

Boiler Scaffold

This scaffold is especially designed for use in boiler maintenance. It is easy to install and remove. The scaffold gives complete coverage of the boiler for construction or repair, and allows for communication between the man in the boiler and the outside operator.

It is easily accessible by workmen, and material may be hoisted inside the boiler. The scaffold is self-cleaning and may be easily removed and dismantled, and provides for adequate load capacity with a special provision for the safety of personnel.

Atlas Industrial Corp., 849—39th St., Brooklyn, N. Y. (Item 315)

Adjustable Safety Wrenches

A self-locking, adjustable wrench called the "Click-Stop" has no buttons, levers, or gadgets. The advantage of any locking wrench is that it will not slip off fittings because it does not change opening size in use or when momentarily laid aside. This saves a mechanic's hands from the beating they take when a wrench slips under a strong turning load. The wrench also saves readjusting time.

The "Clik-Stop," with its identifying golden knurl, has built in locking action. A series of grooves in the bottom of the spring-loaded knurl "ratchet" over two lands in the wrench body allows the user to set the wrench opening in the usual way but prevents the opening from changing if the wrench is dropped or bumped against the work. When turning pressure is applied to a fitting, it is impossible to move the knurl.

The wrench has been field-tested and is available in 4, 6, 8, 10 and 12-in. sizes.

Proto Tool Co., 2209 Santa Fe Ave., Los Angeles, Calif. (Item 316)

Yellow Rainwear

A new line of rainwear offered in two materials—cotton or nylon base—is coated with high-visibility yellow neoprene.

The material is made in a full assortment of styles—jackets, pants, three-quarter and full-length coats, hoods and hats. The garments are full-cut for wear over regular clothing, and a combination of materials provides added flexibility and wearing comfort.

The clothing may be laundered, scrubbed with soap and water or dry-cleaned.

Industrial Products Co., 2787 N. Fourth St., Philadelphia 33, Pa. (Item 317)

Sterilizing-Cleaning Agent

PC-6 is a powerful, germ-killing agent, excellent detergent properties. It is desirable for industrial plants, hospitals, public buildings, etc., and especially for food handling and pharmaceutical establishments.

PC-6 has a phenol coefficient of 6, yet has cleaning ability superior to most detergents. A phenol coefficient of 6 means 6 times the germ-killing power of carbolic acid. Even when diluted with 120 parts water, the product retains its potency. In laboratory tests, the product has been effective against bacteria, virus, fungae, and algae.

It is recommended for economical sanitizing and maintenance cleaning of tiled floors, painted surfaces and washroom facilities. It is safe on the skin, rinses film free and leaves a pleasant, fresh air odor.

The Penetone Co., 74 Hudson Ave., Tenafly, New Jersey (Item 318)

Work Gloves

A neoprene, vinyl plastic (illustrated) and rubber-coated work gloves have distinctive features. The neoprene gloves are claimed to be liquid-proof, acids, solvents and caustics resistant and are recommended wherever heat, snagging or cutting is a danger.

The fully-coated vinyl plastic gloves are said to be three or four times more effective against oil than ordinary plastic gloves. The manufacturer also claims protection against solvents and abrasives, finger dexterity and improved hand comfort.

A positive grip, and excellent resistance to cutting, abrasions, heat and punctures are claimed for the natural rubber coated group.

Riegel Textile Corp., 260 Madison Ave., New York 16, N. Y. (Item 319)

Marine Fire Extinguishers

Two marine dry chemical fire extinguishers feature special salt water resistant undercoatings and Coast Guard approval. They are available in red, light blue and white. The blue and white colors are especially toned to match the modern interiors of pleasure craft.

The two models are:

1. *Portable models* with 4, 10, 20 and 30-lb. dry chemical capacity.
2. *Fire extinguishing systems, semi-portable* with 150 and 350-lb. dry chemical capacity.

The semi-portable extinguishing systems are equipped with 50 feet of hose and nozzles.

Ansul Chemical Co., Marinette, Wisc. (Item 320)

Car Stop

Used in sets, the quick and easy to install car stop requires no drilling, produces no rail joint interference, and no special tools are needed for installation. The unit is semi-portable and is adjustable to all rails with maximum leverage clamps.

The fastening arrangement not only permits varied application to the rail, but makes one size unit adjustable to rails ranging from 60 pounds to the heaviest section.

The stop is "tied" securely to the rail by use of two forged steel U-bolt clamps and mounted to absorb the shock of car wheels striking the stop.

Aldon Co., Dept. 28, 3338 Ravenswood Ave., Chicago 13 Ill. (Item 321)

Disposable Protective Apron

The material used in this apron is KAYCEL, it is fabricated by laminating two layers of cellulose wadding on each side of a nylon fiber base. The material is then treated for fire retardency and water repellency. The product will burn in an incinerator or with combustible materials, but will not ignite from sparks or heat. There is little chance of spontaneous ignition.

The elastic ties are comfortable, and the apron is designed to fit everyone. It is light weight and the reverse side of a soiled apron may be used as a cleaning and polishing cloth.

The apron may be imprinted with safety slogans.

American Mfg. & Sales Co., 1048 Virginia Ave., Indianapolis 3, Ind. (Item 322)

Goggle Cleaning Station

This goggle cleaning station stays right on the job with the workman. It measures only 7½ x 5 x 5 in. and is easily mounted on a wall or machine and is made of aluminum and high impact polyethylene. The station contains a 4-oz. squeeze bottle of Fogpruf and package of 200 optical wiping tissues.

The station is easy to use, as the goggles are held about an inch from the spray head on top, the green button is pushed and the liquid is allowed to dry on the glasses. A clean optical tissue, extending from the bottom of the station, polishes the lenses. The tissue can be discarded at the top of the station.

The spray has vigorous cleaning and anti-fogging powers, removes dirt and grime without streaking, and coats the lens surface with a micro-thin film that protects against fogging for hours.

For locations where the station is not required, the 4-oz. squeeze-type polyethylene bottle of Fogpruf may be conveniently kept in a desk or pocket without breaking or leaking.

Mine Safety Appliances Co., 201 N. Braddock St., Pittsburgh, Pa. (Item 323)

Safety Chuck Key

The use of this chuck key with the KEY-BAK key reel is said to eliminate the danger of starting a drill-press while the chuck key is still in place.

In addition, the reel (attached as it is to the drill-press itself) is always handy to the operator.

The KEY-BAK is watch size, precision made in a heavily chromed case, and has a steel chain with a swivel connection to prevent chain twisting.

Lummis Mfg. Co., 2242 E. Foothill Blvd., Pasadena, Calif. (Item 324)

Carbon Monoxide Tester

A low-cost, dual-purpose carbon monoxide tester makes it possible to detect CO concentrations right in the engine exhaust stream, as well as in room atmospheres.

The direct-reading unit shows at a glance whether carbon monoxide is above or below safe concentration levels, and also indicates the approximate percentage concentration.

The device, called the "Oxy-Monoxo," will detect carbon monoxide in the approximate range of 100 to 1,000 parts per million.

The kit consists of a pushbutton operated aspirator pump with a connector for holding the detector tubes; 24 replaceable sealed glass detector tubes containing the yellow, chemical-gel detector chemical; and six rubber caps for capping detector tubes.

The tester is simple to operate, and smoke, fumes, gases other than carbon monoxide or temperature variations will not affect the readings.

Oxy-Catalyst, Inc., Wayne, Pa. (Item 325)

Fiberglass Ladder

A light-weight, long-wearing and non-conductive fiberglass reinforced plastic ladder is now in full production.

Straight and extension ladders up to 28 feet in length and made with fiberglass reinforced Polylite polyester resin combine protection against electrocution with lightness and ease of handling. The extension models have a specially designed lock that automatically snaps on to a rung when the rope is released. This provides assurance against runaway lowering of the ladder. A slight tension on the rope acts as a brake during lowering.

The fiberglass ladder does not bend, break or crack when dropped, and is impervious to weather, corrosion and acid. The ladder is available with yellow side rails and black steps.

It will be especially useful to utility companies and firms using ladders for electrical installations and repairs.

Hopfield Industrial Mfg. Co., P. O. Box 54, 738 A. St., San Rafael, Calif. (Item 326)

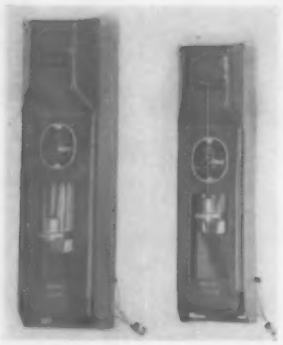
Aluminum Helmets

These streamlined aluminum helmets are designed for use where wide brim safety hats present problems. Wide brim safety protective equipment can easily be blown or knocked off when worn by workers in restricted areas or in wind.

Oil field workers especially will appreciate the "SHORTY." The hat weighs 10 oz. complete, yet its impact strength surpasses that of metal head protection.

Three high ridges across the crown develop a girder-like margin of strength and increase impact protection. The caps are available in six fade-proof colors. The head-band assemblies are easily adjusted to any head size and float freely inside the cap allowing air to circulate around the head.

E. D. Bullard Co., 2680 Bridgeway, Sausalito, Calif. (Item 327)



Fire Extinguisher Weighing Device

The Silent Sentry is a CO-2 Fire Extinguisher weighing device that is said to eliminate the possibility of human error in periodic fire extinguisher inspection.

The device gives continuous assurance that the extinguisher contains an effective charge and is ready for emergency use. A clearly observable indicator on the face of the Silent Sentry will register "Refill" when approximately ¼ of the CO-2 charges escape. In other words, a potential and dangerous condition is indicated before the extinguisher has lost its effectiveness for controlling a fire.

The unit is manufactured in two basic sizes, which will handle all types of fire extinguishers now being manufactured. The patented weighing device is designed to provide easy, rapid wall installation, and no separate mounting brackets or attaching accessories are necessary. There are no parts to wear and it is completely corrosion and rust-proof.

Mel-Rod Mfg. Co., 11616 Hart St., N. Hollywood, Calif. (Item 328)

Shovel & Crane Safety Circle

The Safety Circle is a device easily mounted on any make or model of crane or shovel. Initial tests were made in the lumber, logging and sand and gravel fields where the need has been distinct. The steel mesh platform gives the operators a feeling of freedom from fear always encountered when equipment swings. The circle inscribed by the outside perimeter of the device practically eliminates the feasibility of a worker being in the death-zone.

When it is necessary to move the equipment any distance, the Circle hinges upward and locks securely in position.

Since the Circle automatically inscribes a work area, the operator knows that his counterweight will not smash into an obstacle or damage other equipment.

The Circle is available for immediate installation in the construction, logging, railroad and oil well equipment fields.

Answers, Inc., 1215 Oak St., Eugene, Ore. (Item 329)

First-Aid System

A convenient unit system of industrial first-aid, the "C-Thru Unit System," with inspection window, is a refinement and improvement of the D-unit system and features units with plastic windows that permit the contents of a first-aid kit to be seen and checked at a glance.

Each unit is wrapped in air-tight cellophane with an easy-to-open pull tab, and the continuous red line that signals an open package.

Antiseptics and burn ointments are contained in "one shot" transparent plastic tubes and an effective wound cleanser is packaged in a large transparent plastic tube. All these items, in turn, are packaged in C-Thru units with an inspection window.

All standard first-aid items are now available in C-Thru units.

Davis Emergency Equipment Co., 47 Halleck St., Newark, N. J. (Item 330)

Protective Work Clothing

Dynel protective work clothing is now available in a lasting anti-static finish. After 50 or more test washings and dry-cleanings, the Aston finish clothing retained effective anti-static properties.

The finish repels lint and dust, and may be easily decontaminated after radiation exposure. The manufacturer states this is the first time a garment is available which is simultaneously chemically inert, flame resistant and lastingly static free and, therefore, affords protection in virtually any working environment.

The first industries which are expected to use the new garments include petroleum, chemical, paint, missile and ordnance and other industries where explosive vapors present a spark hazard, and where corrosive fumes, dusts or liquids are job hazards.

The new finish will broaden the utility of Dynel, since it is inert to weak and strong acids, alkalis and salts, and to virtually all commonly used organic chemicals and does not support combustion.

Users are cautioned against laundering in the presence of an oxygen bleach, which is likely to remove the finish.

Milburn Co., 3246 E. Woodbridge, Detroit 7, Mich. (Item 331)

For More Information—Circle Item Number on Reader Service Postcard

NEWS ITEMS

John B. Dunne

Bomgardner Mfg. Co.

John B. Dunne has been named assistant sales manager. Previously, Mr. Dunne was sales manager of the Medical and Hospital Department of Globe Industries, Inc.

With his new organization, Mr. Dunne will be responsible for working with the sales outlets of the company. The company has manufactured a line of stretchers, ambulance cots and allied equipment for over 60 years.

He has had considerable experience in respiratory protection equipment.

* * *

Zenith Radio Corp.

Frank W. Borta has been promoted to district sales representative for the Hearing Aid Division of Zenith.

Mr. Borta will cover six mid-western states. He has been associated with Zenith since 1953 as advertising production manager of the Hearing Aid Division.

Donald T. O'Shea

American Industrial Safety Equipment Co.

E. J. Morse, president, has announced the promotion of Donald T. O'Shea to the position of general sales manager. Mr. O'Shea has been a member of the sales staff for several years, and has been in the safety equipment field for more than 10 years. He is a member of the American Society of Safety Engineers and will maintain his office at the general offices of the Cleveland Company.

* * *

Robert E. Cervay

Buffalo Fire Appliance Corp.

Robert E. Cervay has been named east central district manager for this fire-fighting equipment and systems manufacturer.

He will be responsible for the sale of the fire-fighting equipment for 47 Buffalo industrial distribution outlets in the Southeast.

Previously, Mr. Cervay was with Cities Service Oil Company and the Oil Insurance Association.


John F. Dowling

Silicone Paper Co. of America, Inc.

John F. Dowling has been elected vice-president in charge of sales of this New York organization.

He has been national sales representative for the company, which is a producer of silicone-treated paper with plants at Rochester, N. Y.; Hackensack, N. J.; Wilton, N. H.; Cleveland, Ohio and Lee, Mass.

* * *

Magnesium Co. of America

Charles L. Thompson has been appointed general sales manager of the corporation.

Mr. Thompson has been manager of sales for the Aluminum Extrusion and Tubing Division of Reynolds Metals Company; general manager of the Buda Engine and Equipment Co.; and general sales manager of Material Handling Equipment for Allis-Chalmers Manufacturing Co.

He will maintain his office at the company's headquarters in East Chicago, Ind.

* * *

Fyr-Fyter Co.

The Globe Automatic Sprinkler Co. equipment has been integrated into Fyr-Fyter's line of fire equipment.

The Globe Company manufactures a complete line of sprinkler equipment approved by UL and Factory Mutual Laboratories. The acquisition of the Globe Company has increased the number of Fyr-Fyter manufacturing plants to seven.

* * *


John F. Palmer

Globe Industries, Inc.

John F. Palmer has been named eastern sales manager of the Medical and Hospital Department of this Dayton manufacturer of compressed air self-contained breathing apparatus.

Mr. Palmer has had over 10 years experience in the safety field, and is a member of the American Society of Safety Engineers.

* * *

Mine Safety Appliances Co.

MSA has announced several appointments.

James J. Murphy, Jr., has been named sales manager in the New Jersey area; James C. Sheehan has been appointed a sales engineer at Knoxville, Tenn.; Ronald M. Ladick has been appointed a sales engineer in the Chicago District Office, and John T. Whelan, Jr. has been named as sales engineer in the Omaha, Nebraska area.

If You Use Flammable Mastics

Planning new countertops or a floor tiling job? If you are, know the materials you're working with.

Some mastics and adhesives used in cementing tile are extremely flammable. Vapors given off by the mastic need only a touch of flame to flash into a fire which may critically burn you and your home.

The National Fire Protection Association has numerous recent records of such fires, reporting severe injuries to users.

Take a good, careful look at the warning label on the container of any mastic or adhesive you intend to use, urges the NFPA.

Mastics marked "Caution! Combustible" or "Non-combustible" are safer to use. If they carry a warning label reading "Danger! Extremely Flammable" or "Warning-Flammable" or "Caution, Inflammable Mixture," they are more dangerous, and it's smart to avoid their use.

Whenever you work with mastics of any kind, the NFPA says, follow these rules and be fire safe: (1) Shut off all pilots, stoves and other open flame-producing devices in the area; (2) Don't smoke; (3) Open doors and windows in the area; (4) Choose a safer mastic.

Accidental Nuclear Blast Remote Possibility

ACCIDENTAL nuclear explosion, while moving or storing nuclear weapons, is an extremely remote possibility, the Atomic Energy Commission said.

During the past 12 years aircraft, trucks, and ships carried nuclear weapons in maneuvers, exercises, and practice alerts and to storage places. Few accidents occurred in handling and moving these materials. Not one accident caused a nuclear explosion, fission or fusion reaction creating a large explosive effect.

Many nuclear weapons contain conventional explosives, such as chemical explosives similar to TNT. Crash of an aircraft or severe wreck of a train carrying a nuclear weapon could cause this conventional explosive to detonate by impact or fire. In most cases, the AEC said, this type of explosion is the greatest damage that can happen. Its effect is limited to the accident area.

This kind of accident has taken place occasionally, without damage much greater than that caused by the crash and without injury to persons from nuclear materials. In the majority of aircraft accidents involving a nuclear weapon, nuclear materials would not be burned or scattered. No radiological problem would exist, the AEC said.

Accidental detonation of conventional explosives might scatter materials locally in dust via wind or explosion. This would not be fallout of fissioned materials and could not be considered hazardous unless taken internally, as by breathing. Even then, dangerous dosages are unlikely, the AEC said.

Rough Rides Cause Severe Body Shock

By taking undue advantage of man's ability to withstand body shock, vehicle designers have produced some disastrous effects on the human body, charged A. O. Radke, assistant director of the Bostrom Research Laboratories, Boston, Mass. He spoke at the Annual Meeting of The American Society of Mechanical Engineers in New York.

Passenger car drivers aside, some 15 million drivers each day use rough riding vehicles, such as trucks or tractors, which cause or aggravate a number of injuries, including disorders of the spine and supporting structures, he said. He quoted reports on Armed Services personnel compelled to ride for prolonged periods in jeeps over rough roads. Many of them were forced to leave the service with invertabral disc hernia, operations being required in some cases.

Many of these injuries have occurred because a man seated loses his own natural vibration attenuators—his legs—and, outside of automobiles, vehicle designers have not made any attempt at adequate compensation, both through carelessness and through ignorance of human body limits, Mr. Radke indicated.

He said that the best solution to the problem so far has been suspension seating, as used in automobiles, but he called it expensive and, in some cases, impractical, because of truck or tractor design considerations. Even with suspension seating, vibration intensity may still be greater than tests have shown to be the recommended limits.

However, the future might hold brighter hopes for vehicle drivers, Mr. Radke said. A considerable study has been initiated to measure at least the physiological and psychological factors that affect man exposed to vibration. It is hoped, said Mr. Radke, that the development of these basic data will enable designers to make maximum and effective use of man's ability to withstand shock and vibration. "Effective manpower is perhaps our most precious and limited resource," he said.

TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

Audio-Visual Projection:

If you show safety movies, you'll be interested in Eastman Kodak's new Bulletin V3-22 on audio-visual projection. The booklet contains sections on room facilities, seating plan, screen size and type, loud speaker location, projector location, image brightness and projector distance. Eastman Kodak Co., Dept. 8-V, Rochester 4, N. Y.

For more details circle No. 400 on enclosed return postal card

Ladders:

New, 20-page catalog illustrates and describes safety-step ladders, hydraulic lifts and fixed and adjustable work platforms. The company's new pyramid design is described in detail. Ballymore Co., West Chester 17, Pennsylvania.

For more details circle No. 401 on enclosed return postal card

Work Gloves:

Colorful catalog features company's line of coated fabric work gloves. Various styles are illustrated and reviewed. Among the glove types featured are neoprene and vinyl plastic. There is a chemical resistance chart, grading performance of various types of gloves and handling different chemicals. Granet Corporation, 19 Loring Drive, Framingham, Mass.

For more details circle No. 402 on enclosed return postal card

Floor Absorbent:

The safety features of Eagle-Picher Floor Dry No. 85 are spelled out in a new Bulletin. The product's economic benefits are also discussed. Eagle-Picher officials report actual tests indicate Floor-Dry 85 covers more area per pound because of its light weight. Eagle-Picher Co., Cincinnati 1, Ohio.

For more details circle No. 403 on enclosed return postal card

All-Steel Safety Ladders:

Eight-page catalog illustrates and describes mobile all-steel safety ladder stands. The stands are equipped with special ball bearing casters, which retract automatically under weight. Height, platform, size, width and depth dimensions are stated. Aluminum Ladder Co., Dept. 11N, Worthington, Pa.

For more details circle No. 404 on enclosed return postal card

"Information for Industry":

A new booklet written especially for safety directors and published by E. I. duPont deNemours & Co. Nine new products and services of special interest to those in the safety movement are reviewed. Among the subjects are dry acid cleaners, fire-retardant treatment, and wood protection. E. I. duPont deNemours & Co., Grasseli Chemical Dept., Room N-2533-S, Wilmington 98, Del.

For more details circle No. 405 on enclosed return postal card

Cable Fireproofing:

A new cable fireproofing tape described in a brochure of Johns-Manville Corp., stays strong in fire, water, acids, and alkalies. The product is designed to protect cables in circuits with fast-acting breakers, can also be used generally as a fireproofing material. It is made of asbestos impregnated with silicone. Johns-Manville Corp., 22 E. Fortieth St., New York, New York.

For more details circle No. 406 on enclosed return postal card

Face and Eye Protection:

Catalog No. 35 describes and illustrates goggles, glasses, lenses, welding helmets, hand and face shields and respirators. Sellstrom Mfg. Co., 222 Hicks Road, Palatine, Ill.

For more details circle No. 407 on enclosed return postal card

Floor Maintenance & Safety:

Your static problems answered in "One Little Spark;" a booklet issued by Walter G. Legge Co., 101 Park Ave., New York 17, N. Y. It supplies authoritative data based on Legge's long experience in the development of anti-static devices for people, equipment and machinery.

For more details circle No. 408 on enclosed return postal card

Drum Safety Valve:

Dangerous explosions can be prevented through the use of the Vent-A-Drum Automatic safety valve described in bulletin available from Central Safety Equipment Co., 6613 Marsden St., Philadelphia 35, Pa. Safe storage of flammable liquids is assured because the valve allows air to enter or escape the container.

For more details circle No. 409 on enclosed return postal card

Welding Screen:

Literature describes a new portable welding screen called "Porto-Screen" produced by Frommelt Industries, is being marketed in kit form. The kit contains hinges, tees, treated fabric and hooks. The Porto-Screen parts can be quickly assembled to form a fireproof welding shield. Frommelt Industries, 290 Main St., Dubuque, Iowa.

For more details circle No. 410 on enclosed return postal card

Air Compressor Lubricant:

Spiral-bound booklet 16 pages discusses savings in air compressor maintenance cost and greater safety from flash fires with use of Pydraul AC. Includes interesting illustrations and typical properties tables. Monsanto Chemical Co., Organics Div. Dept. SN, St. Louis 24, Mo.

For more details circle No. 411 on enclosed return postal card

Sling Chains:

Bulletin DH-101 describes properties and capabilities of sling chains. Lists seven points to consider when ordering; chart has working load limits of 2-leg chains. Photos of chains, other equipment included. American Chain & Cable Co., Bridgeport 2, Conn.

For more details circle No. 412 on enclosed return postal card

Duo-Washfountains:

Catalog K-1204 describes newly-designed washfountain. Shows easy wall mounting, absence of scuff base for floor clearance, wide hinged foot treadle to control water supply from sprayhead. Dimensions and specifications included. Bradley Washfountain Co., 2237 W. Michigan St., Milwaukee, Wis.

For more details circle No. 413 on enclosed return postal card

Fire Alarm Systems:

Many types of fire warning systems are covered in 48-page, spiral-bound, illustrated catalog. Gives information for planning, designing, installing, maintenance or expansion of systems. Includes photos, diagrams, other data. The Autocall Co., Shelby 1, Ohio.

For more details circle No. 414 on enclosed return postal card

Exhaust Purifiers:

"Exhaust Fumes are Poison," is a 4-pager on the technical characteristics and typical elimination data for three types of catalytic purifiers. Applications included stationary engines, fork trucks, construction equipment. Oxy-Catalyst, Inc., Wayne, Pa.

For more details circle No. 415 on enclosed return postal card

"An Answer to Worker Tension":

This interesting booklet explains how Muzak lessens fatigue, reduces mistakes, cuts down idle talk, eases friction and quickly repays more than its cost. It shows the basic difference between Muzak and other kinds of work-music. It charts, for instance the effects of Muzak upon the key-punch operators and verifier operations of one of the world's largest insurance companies. It takes you inside the Muzak sys-

tem; shows how Muzak creates, transmits and protects its $10,000,000 treasury of especially programmed work-music. Muzak Corp., 229 Fourth Ave., New York 3, N. Y.

For more details circle No. 416 on enclosed return postal card

Two-Way Weed Control:

Designed primarily to prevent weed growth before it takes place, this new herbicide can also be used effectively after weed emerges. Known as Simizan 50W, the new compound reaches maximum activity on germinating weeds, acting entirely through roots. Detailed information on its many applications may be obtained from Geigy Agricultural Chemicals Div., Geigy Chemical Corp., Ardsley, N. Y.

For more details circle No. 417 on enclosed return postal card

Measures Radiation:

Should a bomb fall it is vital to know the degree of contamination by gamma and beta rays. Available are a remote area gamma monitor and a gamma-beta portable survey meter. Literature gives full details. Riggs Nucleonics Co., 716 North Victory Blvd., Burbank, Calif.

For more details circle No. 418 on enclosed return postal card

Safety Equipment:

Colorful brochure illustrates and describes safety goggles, spectacles and lenses. Helmets and face shields. Protective clothing. Safety (hard) hats. Portable oxygen resuscitator units. Bellows (air) portable resuscitators. Air Reduction Sales Co., 150 E. 42nd St., New York 17, N. Y.

For more details circle No. 419 on enclosed return postal card

"Hazard Finder":

The Crouse-Hinds Co., Syracuse, N. Y., have made available a booklet, "Hazard Finder" which helps you locate the hidden probabilities of electrically-ignited explosions in any hazardous area! Thirteen vital check questions, with evaluations of your answers based on the latest findings of the National Protection Association.

For more details circle No. 420 on enclosed return postal card

Audiometer:

A portable audiometer developed by Beltone Hearing Aid Co., Audiometer Div., 2900 West 36th St., Chicago 32, Ill., is described in detail in new literature. The devices' accuracy, ease of operation, light weight, and low cost are cited.

For more details circle No. 421 on enclosed return postal card

Hand Cleaner:

A creamy hand cleaner know as "Go-Jo" is featured in a new folder prepared by Gojer, Inc., Box 991, Akron, Ohio. Rugged cleaning quality combined with gentleness that will not harm the skin. The cleaner may be used with or without water.

For more details circle No. 422 on enclosed return postal card

Washroom Advisory Service:

Available without charge to building management, architects, commercial and industrial property owners, this services makes analysis of present facilities to evaluate maintenance costs, lighting, ventilation, heating, traffic flow patterns, etc., with the objective of achieving maximum economy. Described in booklet and catalog form. Scott Paper Co., Chester, Pa.

For more details circle No. 423 on enclosed return postal card

Safety Links:

Bulletins introduces new safety link for use with cranes operating on or near high voltages. Links are rated at same working loads as hooks they support, from ½- to 25-tons, and di-electric strength from 1 to 50KV. Fatality through cranes contacting high voltage lines can be avoided through use of this insulated safety link. E. D. Bullard Co., Sausalito, Calif.

For more details circle No. 424 on enclosed return postal card

Automatic Detection Systems:

Illustrated bulletin shows latest equipment based on the principles of automation. Operated on standard 115 or 220 volt AC power these systems are designed for use in various public institutional and industrial buildings. Notifier Corp., 239 S. 11th St. Lincoln, Nebr.

For more details circle No. 425 on enclosed return postal card

Self-Sticking Markers:

Multi-color booklet illustrates plastic-coated industrial markers, with a multitude of uses including pipe and cable marking, aisle, bin, area and column designating. Also featured are non-conductive conduit and voltage markers and easily-read, all-purpose numbers and letters. W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 9, Wis.

For more details circle No. 426 on enclosed return postal card

Fiber Glass Welding Helmets:

Brochure introduces line of white fiber glass welding helmets, including lift and stationary front models. Gives complete charts on types of shades best suited to many brazing, cutting and welding operations. American Optical Co., Southbridge, Mass.

For more details circle No. 427 on enclosed return postal card

Safety Messages:

Literature concerning the usefulness and value of paper cups labelled with safety messages is offered by the manufacturer, U. S. Envelope Co., Springfield 2, Mass. The cups are available in various sizes and styles.

For more details circle No. 428 on enclosed return postal card

Linemen's Equipment:

Linemen's tools, equipment and apparel are described in detail within a new W. M. Bashlin Co. Catalog. Illustrations are used to advantage. This 60-page booklet provides a complete rundown on the Bashlin Line. W. M. Bashlin Co., Grove City 3, Pa.

For more details circle No. 429 on enclosed return postal card

Explosion-Proof Floor Machine:

Bulletin introduces the Hild Model CX, first and only explosion-proof floor machine UL listed for Class 1, Group D, and Class 2, Group G. Plants, refineries and mills with explosive atmospheres will be especially interested. The manufacturer has a selection of static conductive brushes for scrubbing, polishing and dry scaping. A three-gallon tank on the handle converts the unit for fast floor-scrubbing. Hild Floor Machine Co., 1217 W. Washington St., Chicago 6, Ill.

For more details circle No. 430 on enclosed return postal card

Dockboards:

Magnesium dockboards equipped with safety curbs and special anti-slippage locks are reviewed in literature of Magnesium Co. of America, Materials Handling Div., East Chicago 4, Indiana. Magnesium is approximately 25 per cent of the weight of steel, and thus lifting strains are alleviated.

For more details circle No. 431 on enclosed return postal card

Eliminate Floor Hazards:

Florco and its role in elimination of floor hazards are covered in literature and samples available from the Floridin Co., Dept. T., P. O. Box 989, Tallahassee, Fla. The product can be applied to any type floor and will absorb liquids of all kinds. Florco combines high absorption capacity with physical strength; it is one of the few materials of its type to meet Armed Forces specifications and be approved by the Underwriter's Laboratories.

For more details circle No. 432 on enclosed return postal card

Floor Mats:

Floor mats-types to be used under various conditions, and their replacement—are outlined in A. N. Brabrook, Inc., literature. The importance of the product as a preventive safety tool is emphasized. A. N. Brabrook, Inc. 552 West 53rd St., New York, N. Y.

For more details circle No. 433 on enclosed return postal card

Protective Creams:

Literature citing the specific uses for the skin-cote line of industrial protective creams has recently been issued by Boyer-Campbell Co., 6548 St. Antoine, Detroit 2, Mich. Available sizes and their respective prices are also covered.

For more details circle No. 434 on enclosed return postal card

Fire Pumps:

A selection chart designed to help firefighters choose a Barnes portable or fixed emergency pumping unit best suited to their requirements is contained in a new catalog Sheet No. 348 available from Barnes Manufacturing Co., Mansfield, Ohio. The information sheets give specifications on the company's complete line of pumps for broad fire-fighting applications.

For more details circle No. 435 on enclosed return postal card

Use and Care of Wire Rope:

75 pages of useful information on how to select and use wire rope to get best service. Refer to General Information section of 190-page, G-16 Wire Rope Manual which also contains strengths and data on Wire Rope, Slings, and Cable Assemblies. Macwhyte Co., Kenosha, Wis.

For more details circle No. 436 on enclosed return postal card

How To Select a Fire Extinguisher:

This Reference Guide outlines three basic classes of fire—A, B, and C. It also lists seven different types of portable fire extinguishers. Arrangement of the chart is such that quick guidance is obtained on which type of fire extinguisher is best to use in fighting the three types of fires. For example, the chart shows that a carbon dioxide portable fire extinguisher can be used on burning gasoline or oil, but if extinguishers contain soda, acid or water, it will spread liquid fires. It also shows that dry-chemical fire extinguishers can be used on live electrical fires, but foam extinguishers should not. Fire Equipment Manufacturers Assoc., Suite 750, One Gateway Center, Pittsburgh 22, Pa.

For more details circle No. 437 on enclosed return postal card

Industrial Weighing, Load Measuring and Recording Instruments:

Bulletin M-15 describes Martin-Decker's entire line of industrial weighing, load measurement and recording instruments, including Sensater Crane Scales, Lift Truck Weight Indicators, Tension and Compression Load Cell Systems, Crane Weight

Indicators, Dynamometers and Tensiometers. Martin Decker Corp., Long Beach 7, Calif.

For more details circle No. 438 on enclosed return postal card

"LS" Limit Switches:

This four-page data sheet describes the complete line of small-size, 2-circuit, limit switches which have the capacity to handle electrical loads usually assigned to much larger limit switches. Actuator versions covered are: the roller arm, flush-mounted roller arm, low force rod, flexible coil-spring, in-line plunger and roller-plunger. Rated electrically at 10-amperes, 120, 240 or 480 vac, the roller-arm type, for example, measures less than five inches in height. Photographs, dimensional and line drawings, characteristics, electrical ratings and price information are included in this new data sheet. Micro Switch, Freeport, Ill.

For more details circle No. 439 on enclosed return postal card

"Invest in Safety and Economy":

New ladder catalog contains 24 pages of information on "Gold Medal" wood and aluminum step, single and extension ladders and accessories, including trestles; ladder jacks, hooks, irons, feet, etc., for plant maintenance men, sub-contractors and contractors. Gives details on care and use of ladders and how they are made for greater safety, efficiency and economy. The Patent Scaffolding Co. Inc., 38-21 Twelfth St., Long Island City 1, N. Y.

For more details circle No. 440 on enclosed return postal card

For Industrial Safety:

Willson Products Division of the Ray-O-Vac Company has issued a new descriptive catalog showing the firms full line of personnel safety equipment. Lens properties and materials and frame construction and sizing and fitting in addition to product descriptions showing individual components and parts are explained. Particular attention is called to these new Willson safety equipment items added during the past year; No. 100 series Monogoggle, No. 600A MonoMask Respirator; AF & AFS Metal Frame Spectacles; Improved Phenolic Super-Tough Hats and Caps; Quilted Winter Liners WL5 and WL6; Goggles with attachments for Hard Caps; and F7 Shape Lens Contour-Specs. Willson Products Division, Ray-O-Vac Co., 212 E. Washington Ave., Madison, Wis.

For more details circle No. 441 on enclosed return postal card

"Cleaning of Electric Motors":

Fine Organics, Inc., maker of F.O.-128 and many other Safe-Tee Solvents, offers free for the asking, an informative bulletin on "The Cleaning of Electric Motors." Readers will find information on such subjects as: Procedures for Cleaning Motors and Generators, Hazards Present when Using Solvents, How to Select a Safe, Efficient Solvent. It is written interestingly and succinctly. Fine Organics, Inc., 211 E. 19th St., New York 3, N. Y.

For more details circle No. 442 on enclosed return postal card

Wire Rope Sling Order Form:

A new wire rope sling order form, copyrighted and published by Lowery Brothers, Inc., Chicago, sling manufacturers, takes all guesswork out of sling ordering. You don't have to be an expert or highly experienced in ordering wire-rope slings in order to get exactly the sling you need. Simply answering six basic questions gives Lowery Brothers all information necessary to the manufacturer of the right type of sling to do your job. Safety factors, fittings, hoisting angle, diameter of wire rope —all are taken into consideration automatically. However, the experienced sling purchaser will find that this form speeds and simplifies his specifications for the type of slings required. Complete information concerning single part, sling capacities, fitting sizes and strengths, and sling angle load chart are shown on back of the form. Highlight of the new form is a series of drawings at the bottom. Beside each sling are other pictures of individual fittings. To get exactly the right sling you want, it's merely a question of drawing lines from the pictures of fittings to the type of sling you want, ending lines at each point specific fittings are desired. Lowery Bros., Inc., 9332 S. Anthony Ave., Chicago 17, Ill.

For more details circle No. 443 on enclosed return postal card

Brulin's Safety-Solv:

A new technical data sheet on Brulin's Safety-Solv all-purpose industrial degreaser is now available on request from the manufacturer, Brulin & Co. Inc., 2939 Columbia Ave., Indianapolis 7, Ind. Anyone having maintenance problems of keeping machinery, parts and equipment degreased without hazardous or flammable solvents, will find this brochure on Safety-Solv informative.

For more details circle No. 444 on enclosed return postal card

"Centrifugal Pumps—Their Evaluation and Selection":

A 6-page technical article deals with the proper selection of Centrifugal Pumps. The article explains the correct method of superimposing process system and pump hydraulic characteristic data to select correct and most economical-size pumps. The analysis also illustrates; the considerations of future process expansion, the pitfalls of conventional safety factors, pressure distribution within a circuit and whether or not the system is critical regarding exact head data calculations. There are also pump features and impeller design suggestions for pumping corrosive and erosive media. Centrifugal Pump Dept., Ampco Metal, Inc., Milwaukee 46, Wis.

For more details circle No. 445 on enclosed return postal card

"How To Be a Wire Rope Expert":

A new 16-page illustrated booklet on "How to be a Wire Rope Expert," designed for everyone who buys, sells or uses wire rope, describes in easily understandable language the basic principles governing the selection of the proper rope construction for any job. To match the right rope to the job, there are five factors to be considered: 1. Strength; 2. Resistance to bending and vibrational fatigue; 3. Resistance to abrasion; 4. Resistance to crushing; 5. Reserve strength. A rope can be made that excels in any one of these, but when additional factors must be present, as is usually the case, the rope would be totally unsatisfactory. It is necessary, therefore, to attain the best possible balance of the various qualities required to do the job. The booklet describes these factors in detail and shows how they can be balanced by the best possible efficiency regardless of the application. Also illustrated is an ingenious device called the D/d ratio for determining the best relationship of rope size to sheave or drum size. By this ratio it is sometimes possible to determine that a smaller sheave can be used with a different rope construction without affecting rope life. The more popular wire rope constructions are then described, together with lists of typical applications for which they are best suited. Leschen Wire Rope Div., H. K. Porter Co. Inc., 2727 Hamilton Ave., St. Louis 12, Mo.

For more details circle No. 446 on enclosed return postal card

Crane Control:

Bulletin 9100 is a manual on the selection and application of dc crane control. Beginning with an explanation of the basic dc hoist circuit, the manual continues through bridge and trolley motions and includes detail coverage of the components which make up crane control systems. Special attention is paid to the need for and functioning of various safety and protective features. Also includes specifications, performance curves, component lists, tables of dimensions and other details of Clark dc crane control systems and components. The Clark Controller Co., Cleveland 2, Ohio.

For more details circle No. 447 on enclosed return postal card

Fire Extinguishing Equipment:

A new 8-page brochure which describes and illustrates carbon dioxide fire extinguishing systems, fire detection equipment, ultrasonic and photo-electric burglar detection systems, and contains a chart outlining the suitability of portable fire extinguisher for use on various types of fires has been announced by Walter Kidde & Co. Inc., 675 Main St., Belleville 9, N. J.

For more details circle No. 448 on enclosed return postal card

Clinical Use of Gauztex:

This booklet has been prepared especially for doctors and nurses. It is designed to show how the many advantages to be obtained through the use of Gauztex—the Sterile "Wrap-Around" Bandage in first-aid and other bandaging. Since Gauztex will not adhere to anything but itself, it has to be applied as a "Wrap-Around" bandage, and is easily and quickly applied. General Bandages, Inc., Morton Grove, Ill.

For more details circle No. 449 on enclosed return postal card

Rescue Kit:

A rescue kit folder has been prepared by H. K. Porter Inc., to describe its RK-4 rescue kit. Equipment includes a 7½-ton hydraulic jack and 48 versatile attachments. H. K. Porter Inc., 74 Foley St., Somerville, Mass.

For more details circle No. 450 on enclosed return postal card

Emergency Eye Washfountains:

Emergency eye and face washing fountains are highlighted in a bulletin issued by Haws Drinking Faucet Co., 1443 Fourth St., Berkeley 10, Calif. These fountains flood contaminated face areas with water and often provide instant relief, the literature points out.

For more details circle No. 451 on enclosed return postal card

Packaged Air Sets:

Packaged air sets for automation and safety are detailed and illustrated in bulletin available from A. Schraeder's Son, Brooklyn 38, N. Y. Press control and ejection system operators are protected by the sets, which compel operators to keep both hands in safe use during press operation.

For more details circle No. 452 on enclosed return postal card

"The Control of Dermatitis in Industry":

—is the title of a 24-page booklet published by West Chemical Products, Inc., 42-16 West Street, Long Island City 1, N. Y. The program outlined in the booklet for prevention and control of industrial dermatitis is based on extensive hygienic research and experience.

For more details circle No. 453 on enclosed return postal card

Safety Messages:

Workers can be reminded of safety's importance through the use of match books, containing safety messages. Messages include both on-the-job and off-the-job safety. The manufacturers have prepared literature reviewing its "safety design programs." Universal Match Corp., P. O. Box 5841, 400 Paul St., St. Louis, Mo.

For more details circle No. 454 on enclosed return postal card

Sirens and Lights:

Warning signals for cranes and shop trucks are described and illustrated in Catalog 100. Sirens and lights are capable of saving lives as well as expense, the catalog reminds. Federal Sign and Signal Corp., 8725 S. State St., Chicago, Ill.

For more details circle No. 455 on enclosed return postal card

Safety Signs:

Preventive safety is underscored in company's new catalog, which details the firm's line of more than 2,000 stock wordings. In addition, of course, special signs are made to order. Ready Made Sign Co. Inc., 115 Worth St., New York, N. Y.

For more details circle No. 456 on enclosed return postal card

Fume Collector:

Bulletin No. 37E discusses a method of stopping welding fumes at their source. The bulletin also discusses the direct benefits of fume abatement in terms of safety, increased production, and satisfactory personnel relations. Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee, Wis.

For more details circle No. 457 on enclosed return postal card

Swivel Fittings:

Miller ball-bearing swivel fittings, used as connectors for cables, chains and tension rods, are fully studied in a 40-page technical summary booklet from General Machine & Welding Works, Inc., 1100 E. 2nd St., Pomona, Calif. A complete specification table is included. A question-and-answer page provides additional data on the equipment and its use.

For more details circle No. 458 on enclosed return postal card

Skin Cream:

An invisible coating of Kerodex barrier cream may be the answer to skin irritation problems for your workers. It's particularly useful against irritation from epoxy resins and amine hardeners, "dope" solvents, and cutting oils. Literature gives full details. Ayerst Laboratories, 22 East 40th St., New York 16, N. Y.

For more details circle No. 459 on enclosed return postal card

Eye Protective Equipment:

A catalog of "Eye Savers" products contains many new developments, among them are new ideas in goggle ventilation. They are goggle covers and made of soft vinyl plastic, that can also be used in welding goggles. Other new developments are safety spectacles with high impact protection, and "clip-ons" that can be worn over prescription glasses. Watchmoket Optical Co., 232 W. Exchange St., Providence, R. I.

For more details circle No. 460 on enclosed return postal card

Safety Tank Car Platforms:

Booklet describes and illustrates "Neco" Safety Platforms for loading and unloading all fluid products from tank cars and tank trucks. The booklet illustrates four basic types of platforms manufactured by the company. Safety is the dominating feature of the manufacturer's devices, and according to the manufacturer, there has never been an accident recorded at a spot protected by a "Neco" Safety Tank Car Platform. Nichols Engineering Co., 3816 Grand Ave., Chicago 51, Ill.

For more details circle No. 461 on enclosed return postal card

Tread Plate

Applications and fabricating data are given in eight-page booklet on abrasive tread plate. Includes table of design data and sketches of suggested safety applications for this non-skid, corrosion-resistant flooring material. Aluminum Company of America, 1671-F, Alcoa Bldg., Pittsburgh 19, Pa.

For more details circle No. 462 on enclosed return postal card

Overhead Doors

Two bulletins—No. 92 has 12 pages on wood-type overhead rolling doors; No. 93 devotes 24 pages to steel types, including fire doors and grills. Construction details, manual and electric drives are covered in both. Kinnear Mfg. Co., 1720 Fields Ave., Columbus 16, Ohio.

For more details circle No. 463 on enclosed return postal card

Lens Cleaning Tissues:

New 4-page folder describes chemically treated No-Fog Lens Cleaning Tissues which clean and fog-proof with plain water. Non-abrasive and may be used on glass or plastic. Prices and many uses are listed. Carhoff Co., 11706 Kinsman Road, Cleveland 20, Ohio.

For more details circle No. 464 on enclosed return postal card

Barrel-Lift:

Catalog pages describing Morse Barrel-Lift, Model 80, for raising, transporting, rotating, tilting and draining a fully loaded 55-gallon steel drum. On reverse side of page, the Model 85 Drum-Karrier is described and illustrated. Demonstrates the safest and most dependable method of moving and hoisting 55-gallon drums via monorail and crane. Morse Manufacturing Co., Inc., 727 West Manlius St., East Syracuse, N. Y.

For more details circle No. 465 on enclosed return postal card

Alloy Steel Chain:

Illustrated Bulletin No. 13, 16 pages, presents "How To Do It" information on Steel Chain, Slings, Sling Hooks — from ordering to care, use and inspection. Contains diagrams, charts and tables on standard and special styles of steel chain and attachments, and their sizes, weights and working load limits under many conditions. S. G. Taylor Chain Co., Inc., Box 509, Hammond, Ind.

For more details circle No. 466 on enclosed return postal card

Ears and Industry:

This 6-page folder is a discussion of industrial hearing loss and a program for minimizing it. The folder discusses "What Is Noise"—"What Sound Levels Are Injurious to the Ear" — "Why Audiometric Testing"—"What Is Audiometric Testing" —"How to Set Up a Testing Program"— "Types of Hearing Loss." The Maico Co., Inc., 21 N. Third St., Minneapolis, Minn.

For more details circle No. 467 on enclosed return postal card

Relgrit Non-Skid Abrasive Ladder Rungs

A four-page brochure describing the uses and advantages of Relgrit non-skid abrasive ladder rungs which last as long as steel and provide safe footing on ladders even when they are wet or oily. Baked into the surface of the ladder rungs, the Relgrit abrasive surface is manufactured by Reliance Steel Products Company, Post Office Box 510, McKeesport, Pennsylvania, which furnishes rungs for every type of ladder, permanent and detachable telephone pole steps and anchored ladders.

For more details circle No. 468 on enclosed return postal card

Grinding Wheel Guards:

Brochure describes various type guards for shaft equipment, angle grinders, sanders, polishers and other wheel grinders. The guards feature protection with adequate wheel exposure. Morrison Products, Inc., 16816 Waterloo Road, Cleveland 10, Ohio.

For more details circle No. 469 on enclosed return postal card

Rubber Gloves:

Catalog WR-656-75-J, 16-pages, describes and illustrates industrial gloves and finger cots of rubber, latex, Neoprene, Buna-N, and plastic. Tells how to select gloves. Tables show suitability of gloves for variety of materials. The Wilson Rubber Co., 1200 Garfield Ave., S. W., Canton 6, Ohio.

For more details circle No. 470 on enclosed return postal card

Underfoot Safety:

Folder, well-illustrated, presents traction problems and tells how to solve them. Promotes safety through sure footing on wet, dry or oily surfaces. Describes uses on many danger spots, plus ease of application. American Abrasive Metals Co., 400 Colt St., Irvington, N. J.

For more details circle No. 471 on enclosed return postal card

Gum Solvent "B":

Six-page folder describes solvent that flushes lube or hydraulic systems while machine operates. The folder gives complete "where to use" and "how to use" directions, with emphasis on the plant safety feature this being a non-petroleum solvent. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Penna.

For more details circle No. 472 on enclosed return postal card

First Aid Kits:

Wide variety of first aid kits for general and specific uses covered in this bulletin. Diagrams show how to use various medications and bandages. Pac-Kit Co., 175 Greenwich Ave., Greenwich, Conn.

For more details circle No. 473 on enclosed return postal card

Padlocks for Industrial Protection

Catalog 56, 20 pages, features descriptions of padlocks to meet every need, with actual size illustrations of entire line. Special long shackle padlocks are included, as well as super security padlocks which have an extra short shackle clearance of ⅛ inch, and many others. Master Lock Co., Milwaukee 45, Wis.

For more details circle No. 474 on enclosed return postal card

Battery Manual

Battery selection techniques are emphasized in 20-page Bulletin 210, a revised edition of this manufacturer's manual on storage batteries for stand-by power, emergency lighting and switch gear applications. A discussion of charging equipment and simplified battery maintenance procedure is included. Storage Battery installation procedures are described and illustrated by photos. Exide Industrial Div., The Electric Storage Battery Co., P.O. Box 8109, Philadelphia, Pa.

For more details circle No. 475 on enclosed return postal card

Index to Advertisers

A comprehensive Classified Safety Product Index and a Directory of Safety Equipment Sources appear in the March, 1958 Issue.

When writing them, please mention NATIONAL SAFETY NEWS

Use the READER SERVICE POSTCARD

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Here's how it works—
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Advertised Products

—feature equipment and services that will help you solve accident problems in your plant. Instead of making a "mental note," make sure you get full information by sending in the card. If no item number appears with an ad, it will be found on the opposite page, next to the arrow. Cover position ads are shown on the cards as: IFC—inside front cover; IBC—inside back cover; BC—back cover.

•

New Safety Equipment

—shown in the special section has been carefully reviewed. Only new products or newsworthy improvements in existing equipment are considered eligible for this section.

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Trade Publications

—are catalogs, brochures, spec sheets and booklets—a wealth of helpful literature—describing equipment and services that will assist you in comparing before you buy. You can build a valuable safety equipment reference file with these free publications.

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IMPORTANT—Be sure to fill in your name, organization and address in the space provided on this side of the postcard.

Please send me more information on the items circled below:

MAY, 1958
(Good until July 31, 1958)

PRODUCTS ADVERTISED:

IFC	IBC	BC	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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NEW SAFETY EQUIPMENT:

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Please print your name and company in full—do not abbreviate

NAME ..... POSITION .....

COMPANY .....

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Please send me more information on the items circled below:

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TRADE PUBLICATIONS:

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National Safety News, May, 1958

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the Complete Line that's years ahead in safety, style, and comfort!

Plastic and Metal Frame Glasses

These new open-type safety glasses give your workers all the features they want most . . . smart styling plus on-the-job utility. Long-wearing plastic and metal frame makes them an economical safety equipment choice because lenses can be replaced separately. All-in-one plastic section does double duty as lens rim and Comfort Bridge pad. Provides full closure at nose section and is unaffected by skin oils and cleaning agents.

In 2 Sizes • **46 x 39mm (No. 326)**
48 x 41mm (No. 328)

Shape of Lens • **F-7 in clear and anti-glare safety glass and clear Cescolite plastic**

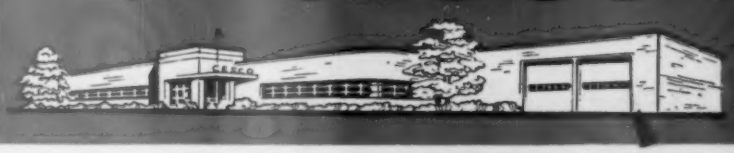
4 Bridge Sizes • **20, 22, 24 and 26 mm**

***ASK** your distributor to show you his complete line of CESCO head and eye protective equipment. There's a CESCO distributor located in most major cities coast-to-coast.*

Plastic and Metal Frame Glasses with Side Shields

The **No. 336** plastic and metal frame glasses offer the same outstanding features as the glasses described above plus wire mesh side shields. Available in 2 sizes: 46 x 39mm and 48 x 41mm.

CESCO **CESCO FOR SAFETY**



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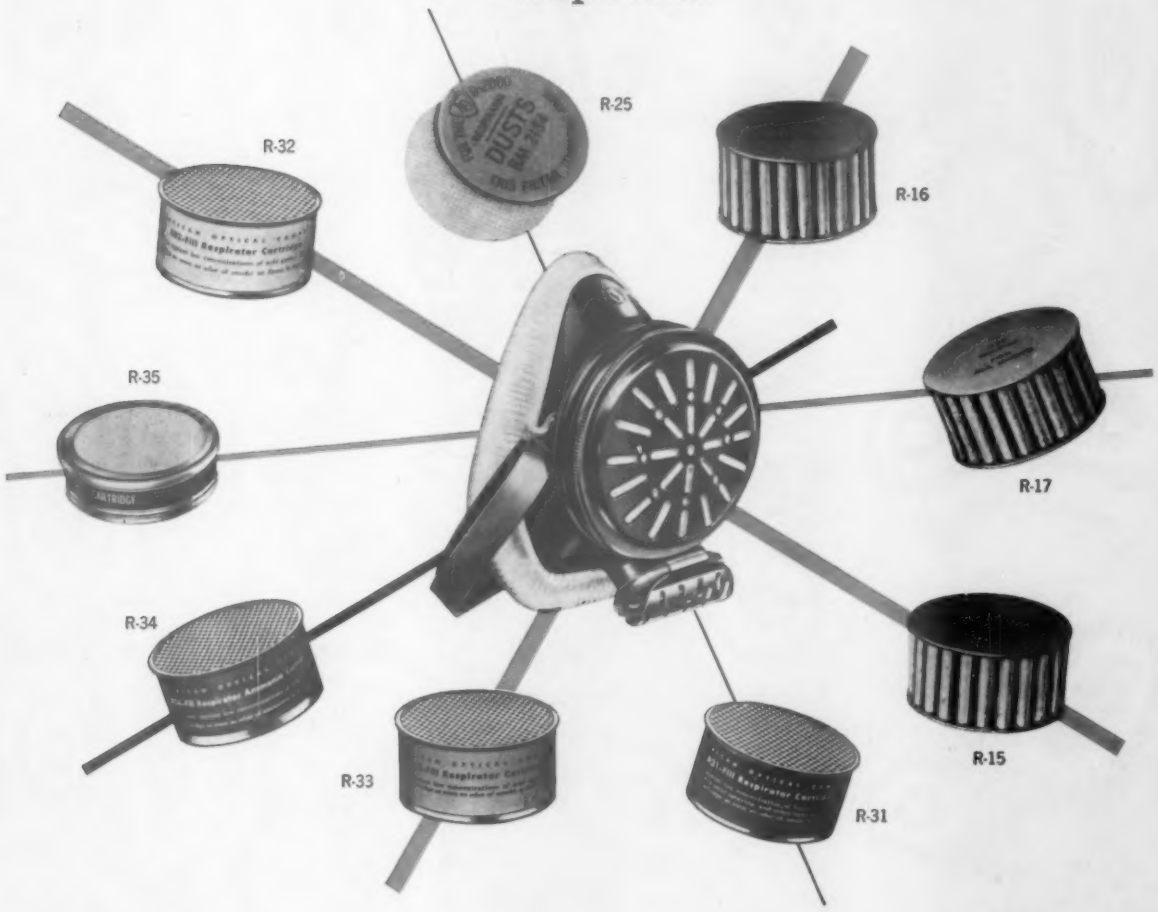

Yes, with the addition of the NEW R-35* Cartridge (and other cartridges and filters), the AO R-2000 can be quickly converted to one of nine respirators for protection against a multitude of dust, gas and vapor hazards — singly or in combination.

AO Sweatbands keep workers, cool, comfortable, efficient, prevent accidents. Check your stock.

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*Recommended for exposures to low concentrations of All Dusts not significantly more toxic than lead and Organic Vapors simultaneously.

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